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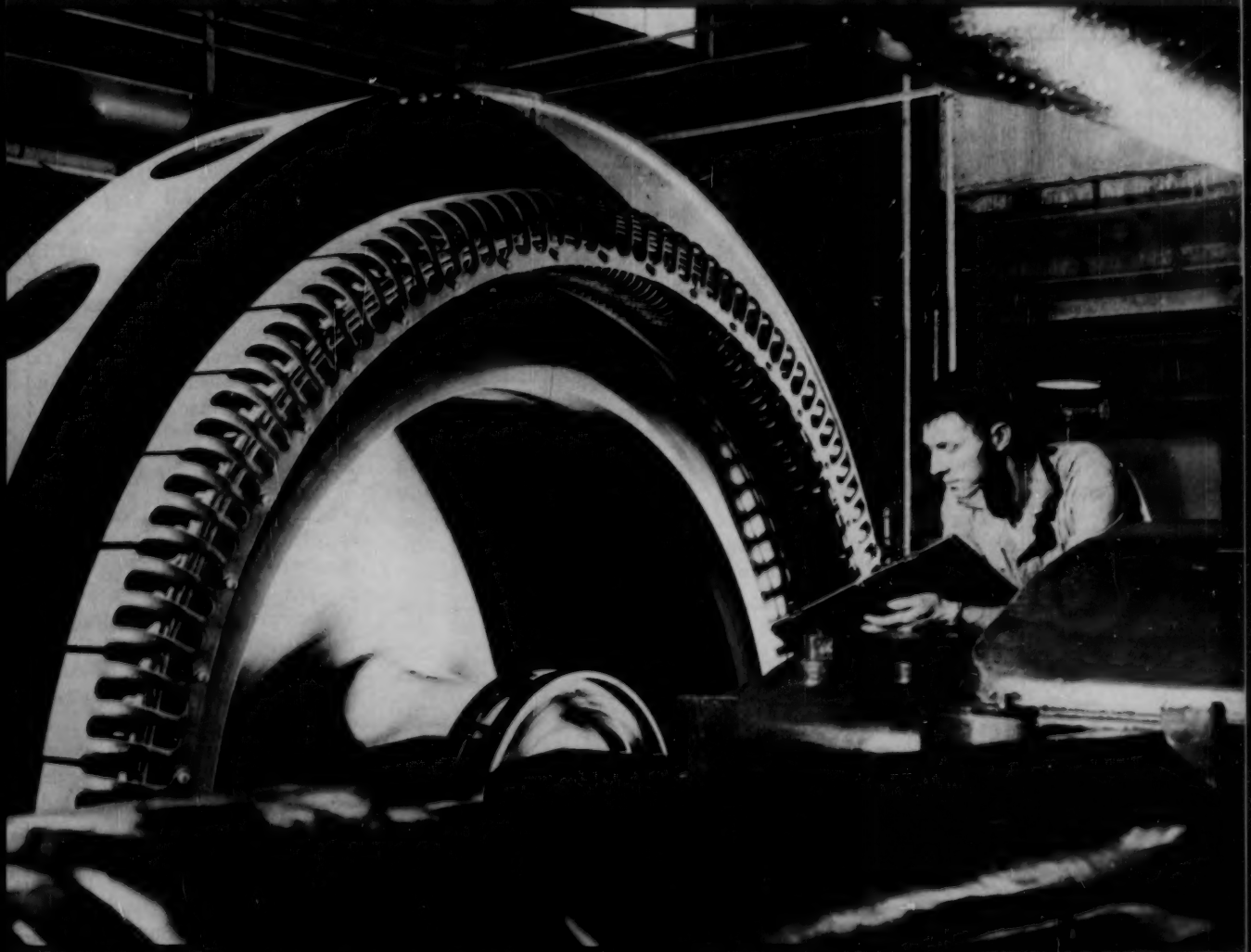

May 1966

Future parts: Part 1.

THE MAGAZINE OF
Standards

May, 1956 Volume 27, No. 5
In two parts

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Marginal Notes

Modular Measure—

Modular Measure is still in the news. In this issue, William Demarest, Jr, explains what makes clay tile sizes different. This is a follow-up to the article in THE MAGAZINE OF STANDARDS for April, entitled "Clay Tile Sizes Have Always Been Modular."

The second presentation of awards for outstanding achievements in application of modular measure is being made at a luncheon of the Producers' Council at Los Angeles, May 14. The award is presented under the auspices of the American Standards Association. Being honored are Leonard G. Haeger, technical director of Levitt & Sons, Inc, Levittown, Pa.; Fred M. Hauserman, president of E. F. Hauserman Company, Cleveland, Ohio; and H. B. Zackrison, chief of the Engineering Department, USA Corps of Engineers, Washington, D. C.

An additional item of Modular news is the visit to Italy of F. C. Frost, ASA's Civil Engineer in charge of Building, Materials, and Mining. Mr Frost was invited by the International Cooperation Administration to take part as USA representative in a conference on Modular Measure organized by the European Productivity Agency and held at Milan and Rome, May 4 and 8.

CEOM Elects New Officers—

Staff executives of societies and associations that belong to ASA as Member-Bodies (ASA's governing groups) have an organization of their own for discussing standards. This is the CEOM (Conference of Executives of Organization Members). Recently the CEOM elected officers: F. R. Fetherston, Compressed Gas Association, *chairman;* Robert J. Painter, American Society for Testing Materials, and Colonel P. L. Houser, Metal Cutting Tool Institute, *vice-chairmen.* Members of the executive committee are: Leo V. Bodine, National Lumber Manufacturers Association; S. D. Daniels, National Aircraft Standards

Committee, Aircraft Industries Association; A. V. Hutchinson, American Society of Heating and Air-Conditioning Engineers; Captain W. N. Landers, Society of Naval Architects and Marine Engineers; G. A. Renard, National Association of Purchasing Agents; F. J. Van Antwerpen, American Institute of Chemical Engineers.

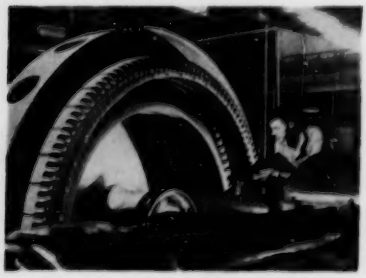
Biggest Standards Problem—

Atomic energy standardization is the greatest standards problem facing the United States, Cyril Ainsworth, ASA technical director, said in a recent address before the Army Ordnance Management Engineering Training Program at Rock Island Arsenal, Rock Island, Illinois. To give the six subcommittees of the Nuclear Energy Planning Committee a chance to complete their recommendations to the American Standards Association, the meeting of ASA's Standards Council scheduled to hear the committee's reports has been postponed to June 1.

New List of American Standards—

Part 2 of this issue is the new indexed list of the 1600 approved American Standards. Represented in the list are the fields of building and construction, electrical engineering, acoustics, chemical engineering, mechanical engineering, textiles, consumer goods, photography, safety, and others. It is easy to pick out the new standards published since the previous list. They are identified by means of a star.

The Front Cover—



A 1750 - Horsepower 4160 - volt synchronous motor direct-connected to reciprocating compressor — one of the rotating electrical machines covered by the new American Standards, C50.

This Month's Standards Personality

CURT I. JOHNSON, whose recommendations led to approval of an American Standard on knurling, is to be General Manager of IBM's new 400,000 square-foot Owego Plant, now under construction. Devoted exclusively to the design, development, and manufacture of bombing and navigation computers and other airborne computing devices for the Air Force, the new plant will employ some 2,000 people by 1957.

Mr Johnson was born in Kallinge, Sweden, and is a graduate of Chalmers Institute of Technology, Gothenburg, with a degree in Electrical Engineering. He has been associated with IBM since 1927.

His work on spring design brought him wide recognition when he presented a paper at a meeting of the American Society of Mechanical Engineers in 1948. By that time he had become manager of the Machine Improvement Group. From this assignment he organized and supervised IBM's Standards Department (see "Engineering Standards at IBM," by Curt I. Johnson, STANDARDIZATION, now THE MAGAZINE OF STANDARDS, December, 1950, page 315).

When a new method for classification of knurls developed by Mr Johnson was recommended as basis for a standard to ASA's Company Member Conference, CMC proposed the Standard to Committee 35 on Small Tools and Machine Tool Elements. As a result, Technical Committee 27 on Knurling was set up by Committee B5. Mr Johnson served on this committee. The recommendation became a full-fleldged American Standard in 1953 (American Standard on Knurling, B5.30-1953).

Several patents have been issued to Mr Johnson. Chief among these is the device for transmission of key-punched information. This was issued in 1932. Also important are a single revolution spring clutch, a constant acceleration and deceleration clutch, a spring coiling device, electronic magnetic step switch, and high precision linear and non-linear potentiometers. Application for the latter was filed in 1955.

Mr Johnson's service during World War II as Production Engineer for various Air Force contracts on which IBM was working led to his present assignment. When the Airborne Computer Laboratories were first organized by IBM, he was made Manager of Engineering. Both the Laboratories and the new Owego Plant are now a part of IBM's Military Products Division.

Community work is among Mr Johnson's outside activities—as Director of the Endicott Boys' Club, the Endicott Community Chest, chairman of the Vestal Planning Board, and the Vestal Youth Council. He is also a member of the Endicott, Binghamton, and Owego Chambers of Commerce, the American Society of Mechanical Engineers, and the American Gear Manufacturers Association.

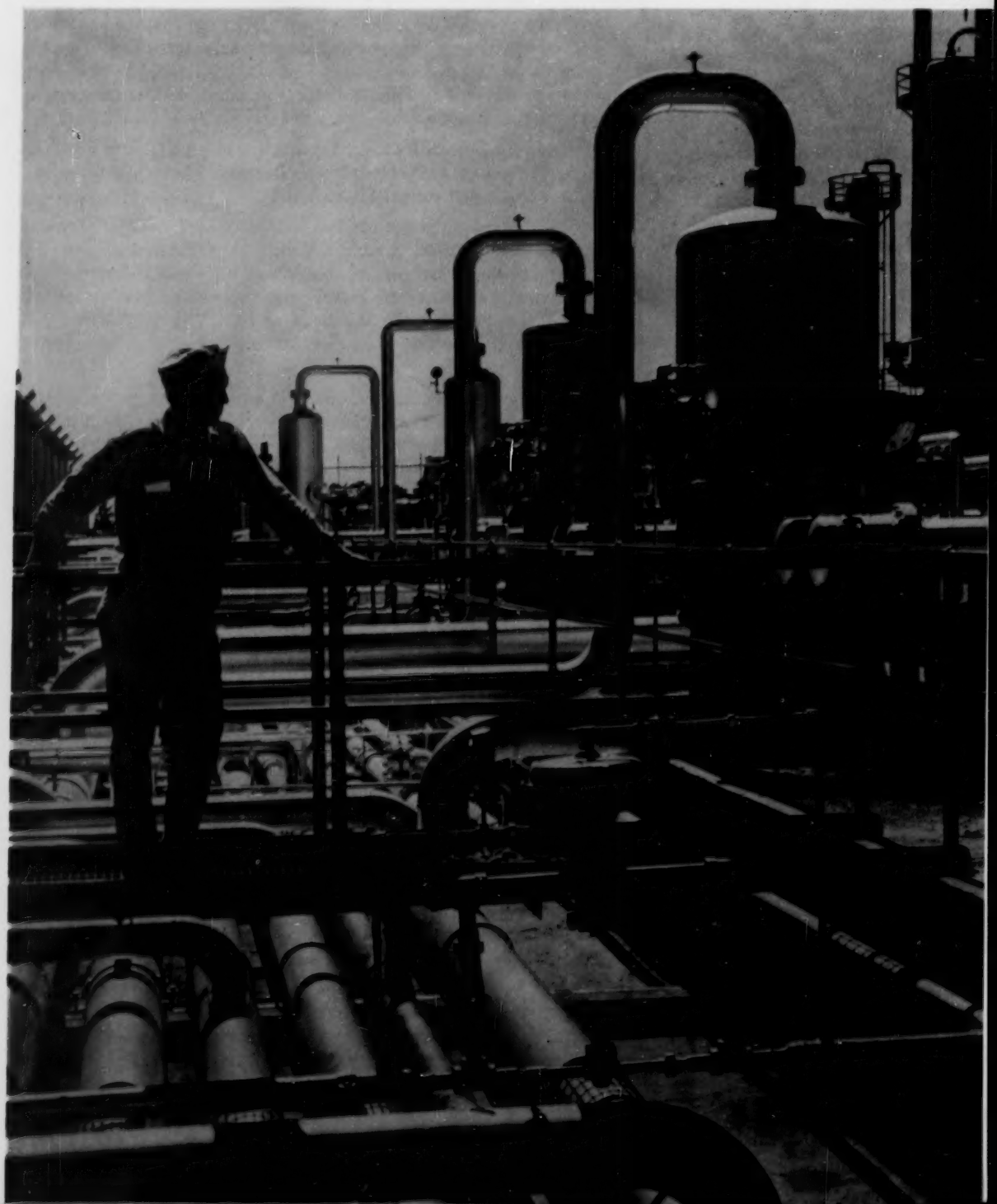
He ranks painting as the most interesting of his hobbies. Although he leans heavily towards water colors he also dabbles in other media. Vacations are usually spent, with his wife, son, and daughter, on the Maine coast looking for subjects. His son, a senior at Rensselaer Polytechnic Institute, is majoring in electronics; his daughter is a freshman at Skidmore College.

an aid to

Mr Evans is chairman of Sectional Committee A13 on Scheme for Identification of Piping Systems. He is Safety Coordinator, Schenectady Relations and Utilities Department, General Electric Company, Schenectady, N. Y.

WHICH PIPES CONTAIN WHAT?
American Standard provides method of identifying contents to protect employees. Gasoline compressor plant suction and discharge header below.

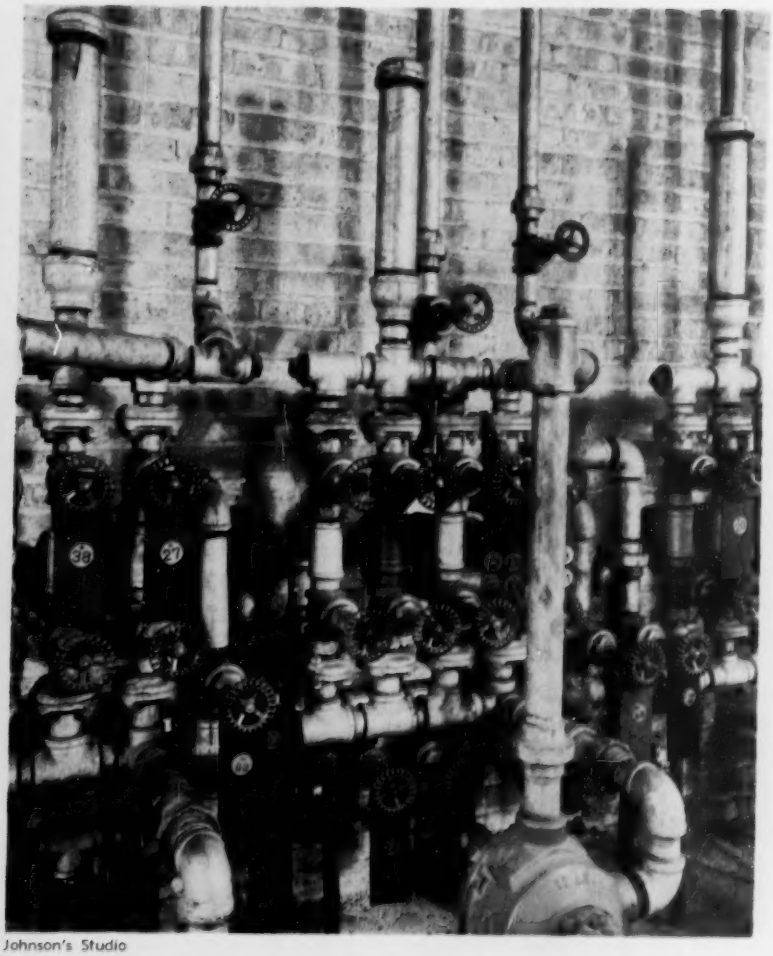
Standard Oil Co. (N. J.)



CIVIL DEFENSE

by W. H. EVANS

Nationwide adoption of scheme for identification of piping systems is urged to assure quick and accurate recognition of protective or dangerous materials



Johnson's Studio

BEWILDERING ARRAY *of pipe valves in turpentine plant.*

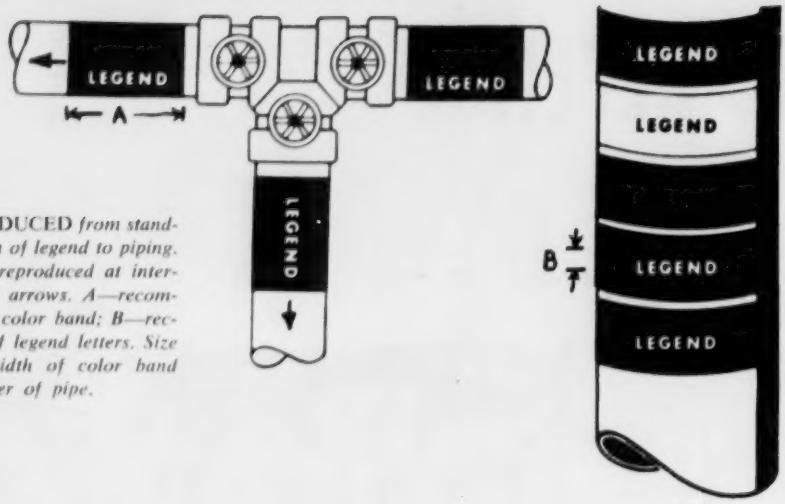
COLORS, either solid or in combination, probably have always been used for identification purposes. In an early example of their importance, the Bible tells the story of the "coat of many colors"; and history mentions many instances of colors used for identification. Armies, for centuries, were identified by the color of their uniforms—the "Red Coats," the "Blue," the "Gray." We have our clans of Scotland, with their colorful tartans; and nicknames such as "Blondie," "Whitie," "Red," and "Blackie." It was no wonder that present-day manufacturers turned to color for identification purposes.

In the early days of the gas industry, some of the compressed gas tanks in use were painted various colors, not to identify the contents but to determine ownership of the tanks. The result has been many tanks of different colors containing the same material. This has proven extremely dangerous in many instances.

As more and more materials, some hazardous and some not, were piped to points of use in various establishments, it became apparent that some means of identification was absolutely imperative.

As early as 1908, William H. Bryan of St Louis presented a comprehensive article on the "Identification of Power House Piping by Colors" before The American Society of Mechanical Engineers (*ASME Proceedings*, vol 30, pp 773-782). The interest which this paper created prompted the Council of the Society to organize a committee whose report appears in the *Transactions* of the Society (vol 33, 1911, p 17). The next year, at the twenty-fifth meeting of the Association of Edison Illuminating Companies, held at Briar Cliff Manor, August 31, 1909, J. P. Sparrow read a brief paper on "Standard Colors for Power Station Piping." This paper was not published, however.

Various other articles were published relative to the standard colors, and in November of 1920, the *National Safety News* published an article stressing the need for a color scheme for pipelines. The article closed with a request for information and comment on the present



DESIGN REPRODUCED *from standard shows relation of legend to piping. Legend is to be reproduced at intervals, indicated by arrows. A—recommended width of color band; B—recommended size of legend letters. Size of letters and width of color band vary with diameter of pipe.*

identification systems in factories and power plants.

In 1921 a number of papers and articles were published. The Prime Movers Committee of the National Electric Light Association submitted a report containing a table showing the color codes used by various companies. The American Society of Mechanical Engineers printed an article in *Mechanical Engineering* on "Standard Methods of Identification of Fluids Conveyed by Pipes in Power Houses and Industrial Plants" (July, 1921). In July of that same year, the U.S. Navy Department issued, as part of its specifications for Power-Plant Apparatus and Piping, a section giving a color scheme for the painting of pipes. This was a revision of a chart originally published in the *Blue Jackets' Manual* in 1917.[1]

Many industries formed their own color schemes, giving no thought, of course, to standardization other than for the individual plant in which they were interested.

Schemes for the identification of piping systems developed by industrial plants of various kinds in many cases worked very well within the plant. Generally speaking, they probably gave a great deal of satisfaction; however, they had one common fault—they suffered from complete lack of uniformity. Mistakes were made by turning valves or disconnecting pipes at the wrong time. This caused accidents and in many cases injury. Municipal fire departments, called in to assist, had no knowledge whatsoever of the color scheme within an individual plant. There are instances of really serious injury due to this.

It was apparent that some scheme must be devised that had flexibility, simplicity, and distinguishability, in order to eliminate the confusion that now existed. If this scheme could be broadcast countrywide, it would help eliminate the possibility of accidents due to the migrating of personnel from one area to another and lack of re-training when a different code existed in different places of employment.

The National Bureau of Standards, in 1921, adopted the United States Navy Department standards. From this has stemmed many of the standards in use by the United States Government. Some of the standards in use, particularly the Military Standard,[2] list colors that industry has discarded because of similarity of colors and consequent possibility of mistakes.

The Sectional Committee on the Identification of Piping Systems was organized under the procedure of the American Standards Association on June 14, 1922. The National Safety Council and The American Society of Mechanical Engineers are joint sponsors for this project and the committee consists of 35 members representing 29 technical societies and industrial organizations. The work of the committee was divided among the following subcommittees:

(1) Identification by Colors

(2) Identification by Markings Other Than Color

(3) Classification.

The Executive Committee consists of the chairman and secretary of the sectional committee and the chairmen of the three subcommittees.

After considerable hard work, a standard was approved in 1928, and in 1945 was reaffirmed. In 1951, the committee was reactivated and the code was revised to its present form.

An important change in this revision is emphasis on identification of the contents of pipes by means

[1] As early as 1913, the Navy had in use a color scheme for identification of shipboard piping. EDITOR'S NOTE.

[2] Military Standard Color Code for Compressed Gas Cylinders and Pipelines, MIL-STD-101.

of lettered legends. This, in the opinion of the committee, was necessary because of the difficulty in striping and other methods of using color, and because of the fact that eventually there would not be enough distinguishable colors for identifying all the materials. The colors that were picked as basic colors recommended by the standard are so far apart on the spectrum that considerable variation in shade can occur and the colors will still be distinguishable. It was the opinion of the committee that the legends will be helpful in that they will definitely identify the material carried by the pipe.

The committee urges that industry not use color as a means of specifying the type of material contained in a piping system unless its use is in conformity with the provisions of this standard. It also urges that the use of color be supplementary to the use of legends.

Piping systems are defined for the purpose of this scheme as including pipes of any kind, as well as fittings, valves, and pipe coverings. Pipes are defined as conduits for the transport of gases, liquids, semiliquids, or plastics, but not solids carried in air or gas. The identification covers fire protection, dangerous materials, extremely flammable liquids, extremely flammable gas, high-pressure gas, and safe materials.

Some of the early discussions of this reactivated committee pointed out quite emphatically that if this were to be a safety code, the classification "extra valuable material" used in the earlier edition did not belong in it. Therefore, the color "purple" was purposely dropped as a distinguishing color for so-called "valuable material." This color has been specified for use in identifying radio-active materials both by the Atomic Energy Commission and by the American Standard for marking physical hazards, Z53.1-1953. Therefore, it is expected that purple will be used to identify piping carrying radio-active materials as well as for marking other radiation hazards.

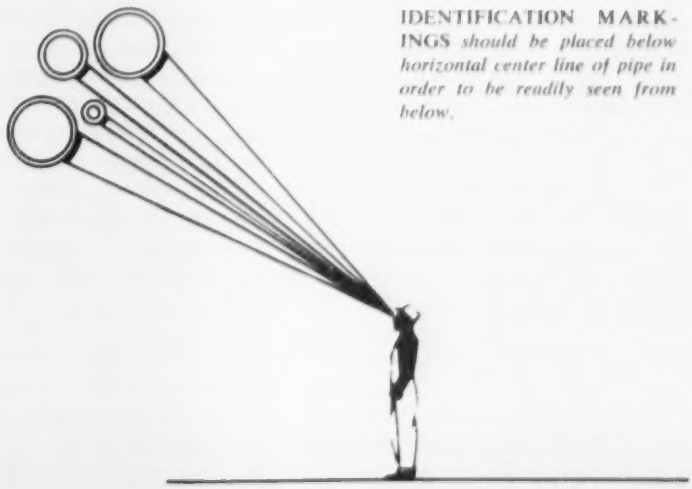
The appendices which listed specific materials and their classifications in the earlier edition have been dropped in the new edition. In many cases they were not complete. To determine whether or not a material is safe or unsafe depends to a certain extent upon the use to which it is put. In general, the committee urges the doctrine that once dangerous always dangerous. It was believed that this is a safer approach than to try to distinguish or identify those dangerous materials that may be used as protective materials under certain conditions — such as high pressure steam which is sometimes used for quenching a fire, for instance.

It is to be noted that our main classification is by the four colors:

Class	*Color*
F—Fire-protection equipment	Red
D—Dangerous materials	Yellow (or orange)
S—Safe materials	Green (or the achromatic colors, white, black, gray, or aluminum)
P—Protective materials	Bright blue

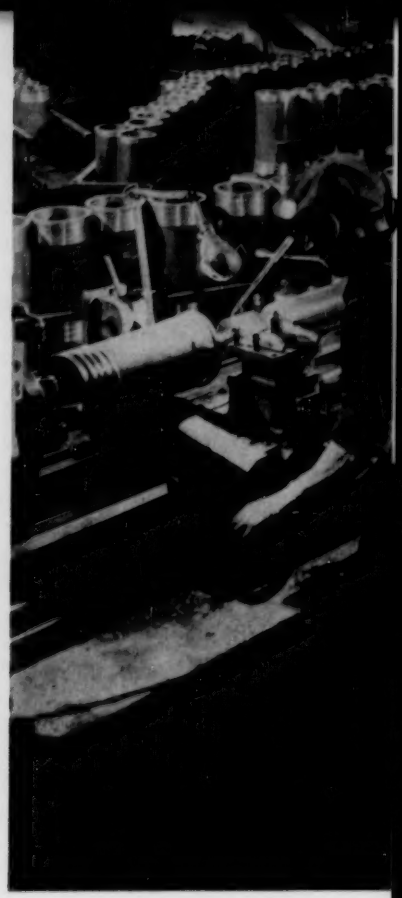
Red, of course, has been assigned because of the long-established custom of using it to identify fire-protective equipment. Yellow and orange were reassigned to dangerous materials because they apparently have the highest coefficient of reflection under white light and can, therefore, be more readily recognized under the poorest conditions of illumination. Green has been the universal color used for safety and was left that way, as was the bright blue for protective materials.

There was not too much change made in these recommendations because of the possible opposition to adoption of radical changes. The committee deliberately did all possible to make the revision simple and concise and to comply with existing standards as far as practical because it is vitally necessary that industry accept this code. A radical change might create opposition for economical reasons, difficulty in retraining personnel, or just resistance to change because most humans are so constituted. We hope industry will comply with this standard and put this scheme for identification of piping systems into effect. If enemy action should ever lay waste some of our industry, it is possible that the damage could be minimized, at least to some extent, if Civil Defense and Plant Defense Personnel, Red Cross Rescue Squads, and other defense personnel were able to follow an established code and know without hesitation which valves to open or close as the case may be.



IDENTIFICATION MARKINGS *should be placed below horizontal center line of pipe in order to be readily seen from below.*

Professor Bliss is Executive Officer, Division of Engineering, of Brown University, Providence, Rhode Island. He has been chairman of the Sectional Committee on the Standardization of Allowances and Tolerances for Cylindrical Parts and Limit Gages, B4, since 1951.



the significance of the 1955

Preferred Limits and Fits

by PROFESSOR Z. R. BLISS

A GREAT deal of time, thought, and discussion has been devoted during the past 35 years to the problem of standards for gages, and tolerances and allowances for metal fits. Approval of American Standard B4.1-1955 is the latest step in a program begun in June 1920. It provides the first real successor to the American Standard Tolerances, Allowances, and Gages for Metal Fits approved in 1925, which has remained in use up to the present time. As late as 1955, the American Society of Mechanical Engineers, sponsor for Committee B4, reported that requests for the 1925 standard were still being received, and, as late as 1954, editions of standard machine design texts quote it as the existing authority. Now, the 1955 standard is quoted in at least one new text known to the writer and presumably all new editions from now on will follow suit.

A short historical summary is needed to understand the significance of the new standard.

Sectional Committee B4 was organized under the procedures of the American Standards Association in 1920, with the title "Sectional Committee on the Standardization of Plain Limit Gages for General Engineering Work." ASME was sponsor.

After its reorganization in 1930, the work of Committee B4 was confined to a study of fits between shafts and holes—a more restricted mission than originally contemplated. This was due to a change in thinking concerning the purpose of Committee B4 that took place soon after issuance of the 1925 standard and that resulted in the reorganization. The new name "Sectional Committee on the Standardization of Allowances and Tolerances for Cylindrical Parts and Limit Gages" indicates the effect of the change.

The reorganized committee devoted considerable study to possible revision of American Standard B4a-1925, but no definite decisions had been made by March 1943. At that time the Automotive Council of War Production and the War Production Board requested ASA to organize a war committee to expedite the work and complete the revision "by developing an American war standard comprising tolerances and allowances for cylindrical fits as well as gage-makers' tolerances and permissible gage wear."

An ASA war committee was formed under the chairmanship of John E. Lovely, then chief engineer and vice-president of Jones and Lamson Machine Company, Springfield, Vermont. It went immediately to work on the problem, preparing a draft proposal which was submitted not only to American industry but also to the British Standards Institution and the Canadian Standards Association. This procedure was to have important effects upon future developments since it brought to attention the possibility of a unified American - British - Canadian standard. All moves from then on were strongly influenced by the obvious importance and advantage of

Ewing Galloway

CYLINDERS ROLL OFF PRODUCTION LINE *in one of the final steps in machining. Accuracy in precision machining results in trouble-free operation.*

unification, strengthened by the concurrent progress of the program for unification of screw threads and the fact that many of the competent technical men in the field were working on both projects.

In connection with their work with the ASA war committee, the British submitted a basic table of tolerances and allowances, classified into different grades. Later, they proposed the adoption of tables of recommended fits for general engineering purposes, each fit being completely specified by tolerances of the mating parts, and an allowance. This proposal is significant since the suggested pattern is followed by the latest standards on limits and fits adopted by all three of the ABC countries.

In February, 1945, when it became obvious that the war was drawing to a close, the ASA war committee decided that further work on a war standard was not justified. It decided, however, that results already achieved should be issued as a draft specification to be submitted to Sectional Committee B4, "with the recommendation that the draft be used as the basis for a guide to industry to be prepared by the sectional committee. . . ." It is interesting that the word "guide" is used here, for the idea of guidance appears again in the opening paragraph on Scope and Application in the new 1955 standard. The draft specification was issued in August 1945, after which the war committee was disbanded. The writer does not know to what extent, if at all, this draft specification may have been used by industry, but at least it had considerable influence on subsequent deliberations.

Following the disbanding of the war committee, a subcommittee of Committee B4, under the chairmanship of C. F. McElwain, International Business Machines Corporation, prepared a document, "Limits and Fits for Engineering and Manufacturing, (Part I)" which was issued as American Standard, B4.1-1947. This publication contains definitions and a table of preferred basic sizes, but does not contain information on recommended fits. It was contemplated that a Part II would be issued to fulfill this requirement. The idea of a Part II was the subject of considerable discussion, but little actual work had been done on it before the reawakening of interest in ABC unification of limits and fits pushed it into the background.

Since the new 1955 standard is based directly upon the ABC system of limits and fits agreed upon at conferences held in New York in February 1953, the importance of these meetings cannot be overemphasized. However, it does not appear appropriate to go into great detail here, particularly since the matter was very ably discussed in an article, "Does American Industry Want American Standard Tables of Recommended Fits?" by Dr John Gaillard published in STANDARDIZATION (now THE MAGAZINE OF STANDARDS) May, 1953 (page 137). This article gives in greater detail much of the historical ma-

H. Armstrong Roberts

MEASURING THE OUTSIDE DIAMETER *of a cylindrical part to assure the proper fit with the mating part*

terial given above and includes a technical discussion of the main features of the system, pointing out how the system might be used by American industry. The draft proposal for the ABC System itself was published in 1953 by the American Standards Association under the designation B4/30.

Representatives of Sectional Committee B4 and its war committee counterpart were active in the ABC conferences of 1945, 1952, and 1953, and the matter was considered at length in committee meetings and by correspondence during the intervening periods. At the final conference in 1953, when the ABC system was finally adopted, the American delegation voted to recommend approval of the ABC proposals as the basis for an American Standard when and if such a standard might be developed. Subsequent work has consisted mainly of putting this recommendation into effect and in determining whether the result was acceptable to and desired by American industry. This was accomplished by preparing a draft proposal which was distributed not only to members of Committee B4, but also to other representative sections of American industry. The draft was accompanied by a questionnaire which asked the questions: (1) Is a new American Standard for limits and fits needed at this time? (2) If answer is "yes," is the draft proposal the type of standard that is desirable? (3) If answer is "no," submit your ideas as to the form such a standard should take. (4) Is the draft proposal as presented acceptable as a new standard? (5) If not, what changes should be made?

Replies to the questionnaire were numerous, representing over 85 percent of those contacted. The response was decidedly favorable to the proposal, those in favor representing 94 percent of those answering on question 1; 95 percent on question 2; and 80 percent on question 4. Since the coverage was believed to have been adequate, the committee proceeded with the assurance that the proposal filled an existing demand reasonably well.

The favorable pattern of the questionnaire was repeated in the letter ballot that led to final acceptance. While many individuals took part in this phase of the work, it is appropriate to acknowledge here in particular the contribution of H. W. Robb, General Electric Company. Mr Robb acted as chairman of the limits and fits sessions of the ABC conferences of 1952 and 1953 and prepared the original draft of the new standard.

The ABC System covers a range of diameters from 0.04 to 20 inches. The new American Standard extends this range to 200 inches, to cover areas considered important by some segments of American industry, although the validity of the system for such large sizes is questioned by some because of possible uncertainties of measurement. This is the most important difference between the two documents, other differences being, in general, matters of detail such as arrangement of tables, format, etc.

Basically, the new standard consists of a series of preferred basic sizes; a preferred series for tolerances and allowances; a system of 13 tolerance grades; and 5 tables of recommended fits, as well as appropriate explanatory material and definitions. The series of preferred basic sizes is substantially the same as that given in Table 1 of American Standard B4.1-1947 up to the 4-inch limit of the older table, but is extended to 21 inches in the new version. The new preferred series of tolerances and allowances extends the range of and adds certain values to Table 2 of American Standard B4.1-1947. The table of tolerance grades indicates the 13 fundamental grades of tolerances, giving the values for 21 size range steps from 0.04 to 200 inches. The definitions have been revised, and where necessary have been changed from older versions to conform to the recommendations of the Joint Committee on Definitions of ASA sectional committees B1, B2, B4, and Y14, published in June 21, 1954.

The tables of recommended fits constitute the most important part of the standard and will undoubtedly be of greatest interest to the designer. In approaching this part of our discussion, it is perhaps appropriate to quote a sentence from Section 1 on Scope and Application. This sentence reads, "The recommendations, therefore, are presented for guidance and for use where they might serve to improve and simplify products, practices, and facilities." The idea of guidance is emphasized, since neither this standard nor any similar one can serve as a substitute for the technical know-how, practical experience, and judgment of the individual designer. Anyone who expects this standard to serve as a textbook will be disappointed, for that is not its purpose, nor should it be.

The tables of fits have been developed to give a series of standard types and classes of fits on a unilateral hole basis. However, for those who wish to use bilateral holes or a basic shaft system, methods of adapting the basic tables are described. This requires a slight amount of additional effort from the user, but results in fits having the same limits of clearance as those given directly in the tables. To build up a set of bilateral hole or basic shaft tables covering the range of sizes which might be required in an average shop would not be difficult.

Fits are designated by symbols, are divided into the three basic classes of Clearance (C), Transition (T), and Interference (N), and further subdivided for tabulation into Running or Sliding (RC), Locational Clearance (LC), Transition (LT), Locational Interference (LN), and Force or Shrink (FN). In addition to its class, each has a grade designated by a number; for example, RC3 for a grade 3 running fit. Since requirements differ, available grades are not the same for all classes, there being 9 grades of RC, 11 grades of LC, 6 grades of LT, 2 grades of LN, and 5 grades of FN fits. Accompanying descriptive material defines the various categories and gives brief technical descriptions to assist the designer in making an appropriate choice. The following is a good example of this material: "RC3 (Precision Running Fits) are about the closest fits which can be expected to run freely, and are intended for precision work at slow speeds and light journal pressures, but are not suitable where appreciable temperature differences are likely to be encountered."

With the exception of Transition Locational Fits which extend only to 20 inches, the tables cover a size range from 0.04 to 200 inches, divided into 21 intermediate ranges in all cases except the table for Force and Shrink Fits which uses 40 intermediate steps. At first the intermediate size range figures may appear a bit unusual; for example, (0.24-0.71). These figures result from a rounding off of conversions from the metric values according to the International Organization for Standardization and represent a compromise to conform to the urgent desires of our British and Canadian friends. It is believed that they will work satisfactorily in our shops.

Since the new standard was finally accepted in October, 1955, no significant information is yet available concerning its actual use to date, and it is too early to predict what its eventual success will be. Up to the present time, only a few questions regarding details and interpretation have been received.

Sectional Committee B4 is naturally desirous of gathering all possible information concerning the practical operation of the standard. It requests that anyone using the standard communicate his experiences to the writer at the Division of Engineering, Brown University, Providence 12, R. I. By considering such comments and suggestions from the practical man in the field the committee can better judge the success of the project and make intelligent plans for future developments.

Copies of American Standard Preferred Limits and Fits for Cylindrical Parts, B4.1-1955, can be obtained from the American Standards Association at $1.25 each.

WINDING CONNECTIONS
being made on a turbine generator.

Rotating Machine Standards

UP-TO-DATE standards information pertaining to a large variety of sizes and types of rotating electrical machines is now available in the new edition of the American Standards, C50. The standards, approved in 1955, are now published in seven separate sections, and supersede the edition published in 1943.

The machines covered range from large generators used in central stations to produce electricity to the smallest fractional horsepower motors which utilize the electricity produced. Producers and users of rotating electrical machines of all types will find their task of specifying, designing, producing, and applying the machines facilitated by using the new standards.

Both Sectional Committee C50, the committee that was responsible for the over-all work, and the subcommittees responsible for individual sections, put a great deal of effort during the 12 years between editions into reconciling different views on important questions such as short circuit requirements for synchronous machines, dielectric test values for exciters, and overspeeds for motors. The committee also made every effort to assure that the revised standards represent up-to-date American practice.

Service conditions, tests, ratings, temperatures, motor torques, overspeeds, starting characteristics, performance specification forms, efficiency, dielectric tests, overloads, voltage regulation of generators, speed regulation of motors, voltage wave shape, direction of rotation, ventilation and enclosures, terminals, frame dimensions, and nameplate marking are some of the requirements covered.

The 1955 edition differs considerably in format and arrangement from the 1943 edition. The com-

Mr Paxton, Engineering Standards Service, Engineering Services, General Electric Company, Schenectady, is chairman of Sectional Committee C50 on Rotating Electrical Machinery. He has long been active in the work of the American Standards Association, not only as a member of a number of committees but also as a member of the Electrical Standards Board and its Power Division. He has taken part in international work on electrical standards as a member of the United States National Committee of the International Electrotechnical Commission, which is affiliated with the ESB. An alternate member of ASA's Standards Council, which has final responsibility for approval of American Standards and initiation of new standards projects, he was a member of the Council's Board of Review from 1947-1954.

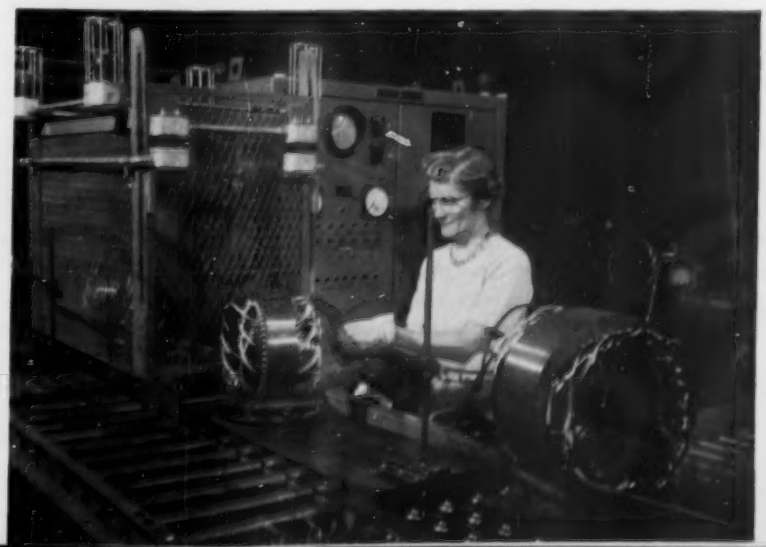
Mr Nims, National Electrical Manufacturers Association, is secretary of Sectional Committee C50. He brought to the committee a great deal of experience gained through 14 *years of work with the Motor and Generator Committee of NEMA and its various subcommittees. This background proved to be particularly valuable to Committee C50 in revising the American Standards on rotating electrical machinery. As secretary of Committee C50, Mr Nims was responsible for preparing the various drafts considered.*

by E. B. PAXTON *and* R. L. NIMS

Reflect Industry Developments

mittee decided that each section should be complete in itself and that cross references to other sections should be avoided entirely wherever possible. This arrangement makes it possible for readers to secure the individual sections that are of special interest to them, an important point because the standards cover such a wide range of machine sizes and types. Another advantage is that the technical data can be kept up to date by revision of each section as needed. The numbering of the sections has been planned to make it possible to insert additional sections when necessary.

MAKING PRELIMINARY HI-POT TESTS *on induction motor stators. Huge turbine generators and small motors are both covered in the American Standards for Rotating Electrical Machinery.*



The available American Standards for Rotating Electrical Machinery can be obtained separately or as a unit in a binder. Those available are:

Synchronous Generators, Synchronous Motors, and Synchronous Machines in General, C50.1-1955

Alternating-Current Induction Motors, Induction Machines in General, and Universal Motors, C50.2-1955

Direct-Current Generators, Direct-Current Motors, and Direct-Current Commutating Machines in General, C50.4-1955

Rotating Exciters for Synchronous Machines, C50.5-1955

Motor-Generator Sets, C50.6-1955

Dimensions for Motors and Generators, C50.8-1955

Test Code for Polyphase Induction Motors and Generators, C50.20-1954

Some of the most important changes in each section are reviewed below:

Synchronous Generators, Synchronous Motors, and Synchronous Machines in General, C50.1-1955— Provisions of the 1943 edition are brought up to date with present practice and new provisions have been added.

Three standard hydrogen pressure ratings for conventional hydrogen-cooled synchronous generators are included for the first time. Ratios of kilovolt-ampere capacity to kilovolt-ampere rating are specified for a synchronous generator when operated at standard hydrogen pressures other than that for which the machine is rated.

Inclusion of the hydrogen pressure ratings required the development of two tables of temperature rise values for synchronous machines—one for air-cooled machines and the other for hydrogen-cooled cylindrical rotor machines. Temperature rises for conventional hydrogen-cooled cylindrical rotor machines are specified for the three standard hydrogen pressures, with limiting observable temperature rises at the lowest and highest hydrogen pressures differing as much as 15 C. In selecting the temperature rises, it was recognized that at higher pressure and corresponding higher load (1) the cooled hydrogen temperature is higher to obtain economical cooler design, and (2) the armature temperature rise is required to be less because of increased thermal drop through the insulation.

One important revision was in the requirement for the short-circuit current that a synchronous machine shall be capable of withstanding. This has been the subject of considerable discussion for many years because of the extent of rotor heating with unbalanced short-circuit armature current. The revision provides that a synchronous machine shall be capable of withstanding (1) a 30-second three-phase short circuit at its terminals; and (2) any other short-circuit current, [other than three-phase, not greater than the three-phase short-circuit current], provided that the integrated product of the duration of the fault and the square of the negative sequence current does not exceed a given value.

Requirements in the previous edition relating to dielectric tests have been clarified. Included for the first time, as an alternate to the alternating-current dielectric test voltage, is the recognition of a unidirectional test voltage for synchronous machine windings rated 6,000 volts and above, although this alternative test is subject to agreement of the manufacturer and the user of the machine.

Provisions relating to balanced and residual component telephone influence factors of synchronous generators, condensers, frequency changers, and phase converters have been revised. With respect to the balanced telephone influence factors, the 1943 edition covered machines rated 1,000 kva and larger. Values are now included for three additional steps of ratings for machines ranging from 62½ kva to 999 kva. Residual component telephone influence factors for synchronous generators rated 5,000 kva and above were included previously. The revision includes values for two ranges of generator ratings, 1,000 to 2,499 kva and 2,500 kva and above.

Alternating-Current Induction Machines, Induction Machines in General, and Universal Motors, C50.2-1955 — A number of the comprehensive changes that have been made in the Motor and Generator Standards of the National Electrical Manufacturers Association in the past decade have been included in this section; for example, the basis of horsepower rating, expressed in terms of breakdown torques, for single-phase induction motors; and the locked-rotor currents for single-phase Design L and Design M integral horsepower motors. These letter designations are used to differentiate between the two values of locked-rotor current, although the standard locked-rotor and breakdown torque values for these motors are the same.

For polyphase squirrel-cage integral horsepower induction motors, rated 1 to 200 horsepower, standard design letters are included to denote the performance characteristics of the motors in terms of locked-rotor and breakdown torques and locked-rotor current. Design letters are used as a convenient means to designate the performance characteristics of motors and are of assistance in determining the interchangeability of the motor performance characteristics. The frame numbers of motors, on the other hand, assist in determining the mechanical interchangeability of motors.

Revised service factors for open-type motors, 2 horsepower and smaller, have been added. Depending upon the horsepower rating of the motor, these vary from 1.2 at 2 horsepower to 1.4 at 1/20 horsepower. Open-type motors rated 3 horsepower and above still retain the 1.15 service factor. More complete tables of horsepower and speed ratings than appeared in the 1943 edition are also included.

Direct-Current Generators, Direct-Current Motors, and Direct-Current Commutating Machines in General, C50.4-1955—This section has been expanded considerably. It now includes ratings and performance characteristics for the larger direct-current motors that have been published in the NEMA Motor and Generator Standards. It does not, however, include provisions for machines for traction use, machines used in aircraft, and rotating exciters for synchronous machines. The exciters are covered by American Standard C50.5-1955. The large direct-current motors included in C50.4-1955 are in three broad categories having ratings larger than 200 horsepower. These are General Industrial Motors, Constant Speed; General Industrial Motors, Adjustable Speed; and Metal Rolling Mill Motors, Adjustable Speed, Class N and Class S.

A comprehensive testing program of temperature measurement on direct-current machines conducted by the D-C Machinery Subcommittee of the American Institute of Electrical Engineers' Rotating Machinery Committee, led to the revision of a table of observable temperature rises that appeared in the 1943 edition. This comprehensive revision covers temperature rises measured by either the thermometer or resistance method for direct-current machines other than fractional-horsepower motors. A separate table is included for temperature rises for fractional-horsepower motors.

Rotating Exciters for Synchronous Machines, C50.5-1955—This is an entirely new section developed by the Exciter Subcommittee appointed by the sectional committee. It makes it more convenient to refer to requirements for direct-current rotating machines used as exciters for central station synchronous machines, without having to determine the applicable requirements for such machines from C50.4-1955. The scope includes main and pilot exciters, both self-excited and separately excited, used for the excitation supply to large central station synchronous machines, such as gas, steam, and hydraulic turbine-driven generators, synchronous condensers, and frequency changer sets.

Standard voltage ratings of 62.5, 125, 250, 375, and 500 volts, and standard speeds are listed. Requirements for temperature rise, commutation, efficiency determination, voltage regulation, voltage stability and exciter response characteristics, and dielectric tests are included. The dielectric test voltages are higher than those that are normally specified for direct-current machines because these test voltages are related to those specified for the windings of the synchronous generator fields.

> Comments on the revised American Standards for Rotating Electrical Machines would not be complete without acknowledging the vast amount of work done by the members of the sectional committee and its subcommittees. Theirs was a formidable task of developing logical and technically sound standards for a wide variety of sizes and types of rotating electrical machines.

Motor-Generator Sets, C50.6-1955—Provisions incorporated here do not appear in the 1943 edition. The set ratings are those that appear in the NEMA Motor and Generator Standards. Since motor-generator sets consist of assemblies of machines that are covered by other sections, the sectional committee here resorted to cross-references to other sections for the sake of brevity and clarity. As a result, the performance characteristics of the components of motor-generator sets are found by cross-reference to the applicable sections.

Dimensions of Motors and Generators, C50.8-1955 — The 1943 edition included only the standard lettering of dimension sheets for machines, with appropriate illustrative figures, but not the frame numbers and pertinent mounting dimensions for the frames. This section now includes, in addition to the 1943 material, standard mounting dimensions for standard foot-mounted motors, face-mounted motors, flange-mounted motors, and vertical hollow-shaft motors, as they appear in the NEMA Motor and Generator Standards. Not included in this section are the dimensions for the 182 to 445 U rerated frames. These appear in the NEMA Motor and Generator Standards as Suggested Standards for Future Design.

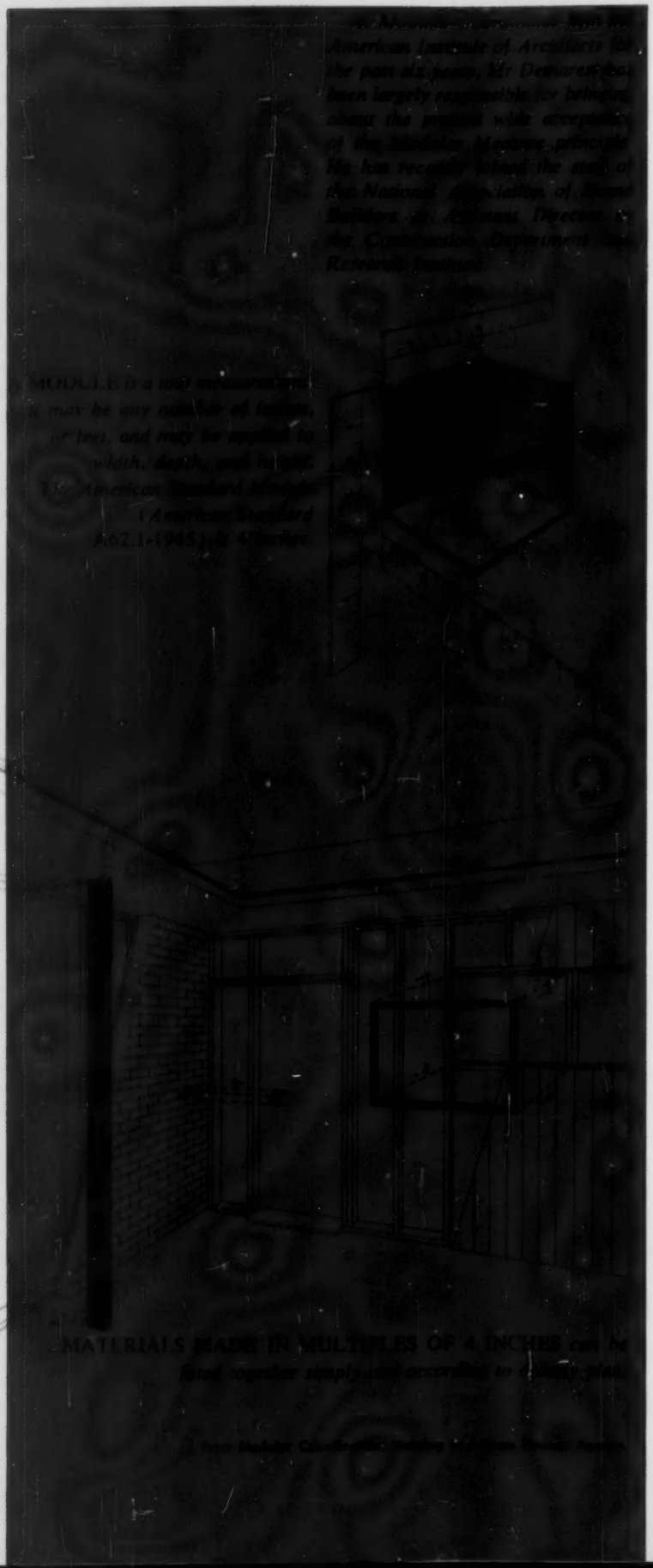
Test Code for Polyphase Induction Motors and Generators, C50.20-1954 — Developed by a Task Group of the AIEE Induction Machinery Subcommittee, this section was published as an American Standard in 1954 and had been approved by the sectional committee with only a few changes. The inclusion of this first test code as a separate section was an innovation. It is anticipated that other test codes under development by AIEE will be added from time to time.

Because of the decision of the sectional committee to include test codes as separate sections, most of the directions for testing that were in the previous edition have been eliminated, from all the sections relating to particular types of machines. In the future, the American Standards will refer to test codes for such information.

Copies of the individual standards can be obtained as follows:

Synchronous Generators, Synchronous Motors, and Synchronous Machines in General, C50.1-1955 $1.80
Alternating-Current Induction Motors, Induction Machines in General, and Universal Motors, C50.2-1955 $1.30
Direct-Current Generators, Direct-Current Motors, and Direct-Current Commutating Machines in General, C50.4-1955 $1.50
Rotating Exciters for Synchronous Machines, C50.5-1955 $0.80
Motor-Generator Sets, C50.6-1955 $0.50
Dimensions for Motors and Generators, C50.8-1955 $1.00
Test Code for Polyphase Induction Motors and Generators, C50.20-1954 $0.80

All these standards are also available as a complete set in a binder for $8.25. The three-ring brown leatherette binder, with metal backplate, opening boosters, and a tab for each section, is $2.00 if purchased separately. The title *American Standards—Rotating Electrical Machinery* is imprinted in gold on the front and on the backbone.



Ceramic and

THERE is much valuable information contained in the article, appearing in the last issue of THE MAGAZINE OF STANDARDS, by Mr J.V. Fitzgerald of the Tile Council of America Research Center, entitled "Clay Tile Sizes Always Have Been Modular." It is interesting to learn the basis for the present ceramic tile sizes; they warrant careful consideration relative to the "Modular Measure" basis for dimensioning buildings and standardizing materials unit sizes. Modular Measure, which was developed under ASA Project A62 and is now widely used in U.S. building, relies upon a 4-inch unit, or "module." (Traditional dimensioning of buildings uses 1/16-inch as its smallest unit. Thus, a dimension of 24 feet, 9 3/16 inches on a plan done the old way becomes 24 feet, 8 inches by Modular Measure.)

The basic significance of Modular Measure lies in the fact that it is an essential part of the present trend toward industrialization of the American construction industry. Industrialization here means factory-fabrication of building parts, which are then distributed and stocked until ordered, finally delivered to the building site and assembled there without re-fabrication. Just as in other industries, such industrialization reduces costs. Modular Measure encourages economical use of standardized building materials; it does not result in standardization of design. The 4-inch module is small and gives the designer ample freedom. Modular colonial-style houses, modular gothic churches, modular contemporary schools and hospitals now stand throughout the country.

Tile Sizes Modular Measure

by WILLIAM DEMAREST, JR

Ceramic mosaic tile, Mr Fitzgerald points out in his article, are ordinarily mounted on one-foot by two-foot sheets. These are modular (3 modules by 6 modules). The concept here, he says, can be compared to wallpaper: the decorative pattern need not be modular in itself, as long as the sheet-size is. This is reasonable "modular thinking"—in two dimensions, since the nature of the material does not make demands upon all three dimensions encompassed by Modular Measure.

The major proposition set forth in the article is that ordinary ceramic tile sizes have always been modular in that they "are related to carefully chosen modules." This raises a question regarding terminology. Modules of one kind or another have been used in building design ever since the ancient Greek temples. Present-day architects attach great importance to such design-modules, especially planning modules. These may range from, say, 3 feet, 4 inches to 20 feet and larger and are used to introduce order into design. They are generally a multiple of 4 inches and are selected upon the basis of the requirements of the particular design. Apart from these design-modules — or as the basic unit of which they are made—is the American Standard building module of 4 inches. It is recognized throughout the industry as the "least common denominator" for all dimensioning and the basis for standardization of unit sizes. To comply with Modular Measure, a building or building material unit must comply with the 4-inch basic Module. This very process is now going on, as a growing number of designers dimension their drawings in 4-inch multiples and more and more material sizes are adjusted to this American Standard construction module.

No other module is recognized by the industry as a basic unit in dimensioning and standardization of sizes. One can therefore question the "basic square or 'module' " cited by Mr Fitzgerald: It is 6 inches, the side of the basic, square ceramic tile unit. Even here, the unit would not be seriously out of step with the Modular Measure trend, but for two considerations. First, it is not stated that the 6-inch dimension makes allowance for the mortar joint; hence, two units combined would fail to equal three standard modules. Second, the most common size is not 6 inches square at all, but a smaller unit, 4¼ inches square, which happens to bear a geometrical relationship with a 6-inch square. (The article shows that the interrelationships between ceramic tile sizes so worked out are very useful in tile-setting.) The difference between ceramic tile and other building materials, Mr Fitzgerald says, "is fundamental and not readily amenable to conformity . . . little is gained by trying to impress the 4-inch module onto tile sizes. The geometrical relationships were required to fit together many different sizes . . . to maintain uniform joints . . . as well as economy in manufacture. On the other hand, Modular Measure for other building materials requires a common size factor . . . so that they may be assembled with a minimum of fitting and waste."

The proponents of Modular Measure should be able to find little or no basis for disagreement here. Accepting the assurance of a specialist that the geometrical relationships described are necessary to the economical development of a two-dimensional tile pattern, it can be readily seen that the product not only is not modular in the accepted sense of the word; it need not be modular.

At the same time, it is gratifying to learn that current research by the Tile Council of America points toward the development of larger ceramic tile assemblies which will be coordinated in size with other materials occurring in a particular installation: 5-foot wide tile panels to go over 5-foot bathtubs, for example. A 12-inch x 12-inch mosaic-tile flooring unit has also been developed experimentally.

"It is most desirable to the tile industry," Mr Fitzgerald concludes, "to have modular walls and floors specified for receiving tile . . . [The tilesetter's] job will become much easier when walls and floors to receive his product begin to become more accurate." This observation holds true in many other ways, throughout the various phases of the construction operation. Perhaps even more than the tilesetter, the mason foreman appreciates modular drawings and modular materials since the combination brings everything under easy control for his operation. The estimator can take off quantities and arrive at his figures with greater confidence when the job is modular.

Most recent evidence of the worth of Modular Measure to practical construction men is the announcement last month that the Associated General Contractors of America had joined the American Institute of Architects, The Producers' Council, and the National Association of Home Builders in sponsoring ASA Project A62 on Modular Measure. Organizations endorsing the simplified dimensional system include the national mason contractors' association, the bricklayers' union, and many associations of materials manufacturers.

The contractors' reasons for favoring Modular Measure were well expressed recently by C. M. Guest & Sons, a major general-contracting firm in South Carolina: "We are glad that architects and engineers have developed the use of Modular Measure because we believe this method is practicable and will simplify and standardize the size and use of commonly-used materials. This will make the work in the field easier for the superintendent and his men and will make quantities of material easier to determine. All of this naturally will reduce the cost."

IN MEM

E. C. CRITTENDEN

Dr E. C. Crittenden, one of the outstanding leaders in standardization for nearly 40 years, died March 28 of cancer at the age of 75.

Internationally known as a scientist and expert on standards of physical measurement, Dr Crittenden was Associate Director of the National Bureau of Standards at the time of his retirement in 1950. He had continued to serve the Bureau as Consultant to the Director up to the time of his illness.

Dr Crittenden became a member of the Main Committee of the American Engineering Standards Committee (corresponding to what is now the Standards Council of the American Standards Association) in 1924. He served as chairman of the Council and member of ASA's Board of Directors from 1945-1948. His sympathetic understanding of industrial problems and his ability to bring about teamwork between government and industry were particularly helpful to ASA's work on standards. His interest in electrical standards, both national and international, made him particularly valuable as a member of ASA's Electrical Standards Board (then the Electrical Standards Committee) and on the United States National Committee of the International Electrotechnical Commission. He was president of the USNC from 1939-1946.

While serving as chairman of ASA's Standards Council, Dr Crittenden took a leading part in the international meetings that preceded creation of the International Organization for Standardization following World War II.

Dr Crittenden was known throughout the world for his work with the International Committee on Weights and Measures and the International Commission on Illumination. He was vice-president of the Commission from 1939 to 1948 and president of its U. S. National Committee from 1928 to 1935. One of his best-known achievements was his contribution to the development and international adoption of the "candela," the new fundamental unit of candle power adopted in 1948.

From 1946 to 1954, Dr Crittenden was the United States representative on the International Committee on Weights and Measures and served as its vice-chairman from 1950 to 1954. He took a leading part in replacing the obsolescent international system of electrical units by the so-called absolute electrical units. These new units provide a basis for all electrical measurements now made in this country and throughout the world. They were legalized in the United States by Public Law 617 passed by the 81st Congress. Dr Crittenden was vice-chairman of ASA Committee C61 on Electric and Magnetic Magnitudes and Units from 1935 to 1949.

When he first joined the staff of the National Bureau of Standards as an Assistant Physicist in 1909, Dr Crittenden was assigned to the Photometric Laboratory. He was named Chief of the Bureau's Electrical Division in 1921. Under his leadership the work of the Division expanded to keep pace with the rapid developments in radio and electronics. Major units developed from groups under Dr. Crittenden's leadership, include the Diamond Ordnance Fuze Laboratories of the Department of the Army (formerly the Ordnance Develop-

IRWIN D. WOLF

The work on standards for consumer goods has lost one of its important figures in the death of Irwin D. Wolf, president and general manager of Kaufmann's Department Store. Mr. Wolf had been a member of the board of Directors of the American Standards Association since January 1955. He died April 18 at the age of 61.

As chairman of the ASA Advisory Committee on Ultimate Consumer Goods during World War II, he had taken a leading part in bringing about a national program under the procedures of the American Standards Association for development of standards for consumer goods. His most recent contribution to this program was on development of standards for all textiles. He not only served as presiding officer of the General Conference at which the ASA project was launched early in 1954, but also, following approval of the project, he was named chairman of ASA Sectional Committee L25.

Mr Wolf was chairman of the executive committee of the National Retail Dry Goods Association, which sponsors the ASA work on textile standards.

In 1948 he was presented the Association's Gold Medal for distinguished service to retailing. His contributions to retailing also brought him a citation to the Hall of Fame in Distribution by the Boston Conference on Distribution in October, 1953.

Philip M. Talbot, senior vice-president, Woodward & Lothrop, Washington, and president of the National Retail Dry Goods Association, commenting on the association's loss, said: "Merchants everywhere have not only lost a colleague but a true friend whose name stood for the best moral and business ethics in retail distribution. The NRDGA, whose interests he served so long and faithfully, will particularly miss his guidance, his dynamic leadership and his counsel."

ORIAM

ment Division of the Bureau); and the Bureau's Central Radio Propagation Laboratories at Boulder, Colorado.

Dr Crittenden was made Assistant Director of the Bureau in 1933 and was placed in charge of the overall research and testing activities of the organization. In 1946 his title was changed to Associate Director.

He was awarded the Gold Medal of the Illuminating Engineering Society for "meritorious achievements conspicuously furthering the profession, art, or knowledge of illuminating engineering" in 1946. In the same year the Case Institute of Technology conferred on him an honorary Doctor of Science degree as "a devoted servant of the public, exponent of precise measurement, and international authority on the standards of science and industry." He received the Department of Commerce Gold Medal for Exceptional Service in 1949, the first year in which the award was established.

In addition to his work with ASA, Dr Crittenden was president of the Illuminating Engineering Society in 1925; president of the Optical Society of America, 1932 to 1933; associate editor of the *Review of Scientific Instruments*, 1934 to 1936; and chairman of the Interdepartmental Screw Thread Committee in 1952.

He also took part in the work of the American Society for Testing Materials, the American Institute of Electrical Engineers, the American Institute of Physics, the National Research Council, and the International Committee on Legal Metrology.

Commenting on his passing, Dr Lyman J. Briggs, Director Emeritus of the National Bureau of Standards, with whom Dr Crittenden worked for many years, said: "I leaned heavily upon him because of his extensive knowledge of the Bureau's activities, his ability, his cheerfulness in accepting difficult assignments, his patience, his industry, his good judgment, his innate sense of fair play. His numerous contacts with outside organizations commanded confidence, admiration, and respect."

Dr A. V. Astin, the present Director of the Bureau, said: "He was a genuine leader and a fine scientist. His contributions to the program of the Bureau, to the advancement of international scientific understanding, and to the achievement of precise standard measuring techniques are of inestimable value. He has left a fond and permanent mark upon the character of the Bureau. We are fortunate to have had the advantage of his continuing efforts and counsel for several years after his retirement. His passing is a profound loss."

Concerning his contributions to the American Standards Association, Vice Admiral G. F. Hussey, Jr, USN (Ret), Managing Director of the Association, commented: "Dr Crittenden was chairman of the Standards Council when I became managing director of the ASA in 1948. During my acquaintance with him, I came to respect him both as a scientist and an administrator who outstandingly represented the finest traditions of the federal government service. Dr Crittenden brought his outstanding scientific background to play in the solution of the administrative and organizational problems facing ASA. Although not in themselves scientific in character, the decisions reached benefited from his scientific viewpoint. At all times we could count on him for a sympathetic understanding and sound advice."

EDWIN L. HALL

Sectional Committee Z21, Approval Requirements for Gas-Burning Appliances, has expressed its sorrow at the loss of its secretary, Edwin L. Hall. Mr Hall, director of the American Gas Association Laboratories in Cleveland and Los Angeles, and assistant managing director of the Association, died suddenly April 1 at the age of 53. He had been secretary of Committee Z21 for the past nine years.

Mr Hall's death came on the eve of the Eleventh Annual AGA Research and Utilization Conference in Cleveland. Chester S. Stackpole, managing director of AGA, told the more than 500 delegates at the meeting that "Ed Hall was one of the best loved and most respected men in the industry." In 1950, he had been presented the AGA Distinguished Service Award, the highest honor of the Association, for having made the most outstanding contribution of any individual toward the advancement of the gas industry. In 1952 he was awarded the Walton Clark Medal by the Franklin Institute of Philadelphia for "his many contributions to the gas industry."

Mr Hall became director of the AGA Testing Laboratories in 1947, succeeding R. M. Conner, who had served on Sectional Committee Z21 for many years. He was appointed an assistant managing director of the AGA in 1950.

In the following resolution adopted by Sectional Committee Z21, Mr Hall's contributions to national standards are recognized:

RESOLUTION

WHEREAS, EDWIN L. HALL, At the height of his distinguished career in the gas industry, departed this life on April 1, 1956, and

WHEREAS, For nine years he had been secretary of ASA Sectional Committee, Project Z21, AGA Approval Requirements Committee, assisting the committee and its subcommittee in the task of formulating and revising national safety stand-

Continued on page 153

Are These Cases Work Injuries?

Rulings of the Committee on Interpretations are now being issued on whether unusual cases are to be counted as "work injuries" under the new edition of American Standard Z16.1-1954. Title of the standard is Method of Recording and Measuring Work Injury Experience. Sponsors of Committee Z16 are the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

Case numbers in the new series start with 400. The cases below represent the fifth installment in the series under the revised edition of the standard. The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply.

Cases 400-450 are being reprinted with an index prepared by the National Safety Council. To make it easy to locate all cases applying to any section of the standard, the index is arranged both numerically by paragraph number of the standard and numerically by case number. Each index reference includes a brief description of the case. Reprints are 50 cents per copy. Liberal discounts are offered for quantity orders.

CASE 440. (A1.6 *i*)

An employee during her coffee break or morning spell left the company's premises and crossed the street to a luncheonette. On her way she stepped on a broken sidewalk and twisted her ankle seriously enough to prevent her returning to her job. She was temporarily totally disabled for 12 days.

Employees normally used neighboring luncheonettes during their spell and lunch periods. Management had not prohibited employees from using them. Spell periods were staggered to prevent crowding of the plant cafeteria which was on the third floor. However, some employees preferred to go to the neighboring luncheonettes. Using the luncheonettes had been the practice for as long as spell periods had been allowed.

Decision: This injury should not be included in the work injury rates. This employee was on a public street or sidewalk when the accident occurred, and although the employee's absence from the employer's premises was with the employer's permission, it was not for the employer's benefit.

CASE 441. (5.8)

An electrician in a paper mill worked for seven and a half years in contact with items such as Acid Core Solder, Calcium Chloride (Brine), and a chemical used in the treatment of wax. He suffered an acute case of dermatitis to the hands and feet, and lost time from work. Patch tests conducted by a doctor gave positive reactions to the above chemicals. The employee had had no previous history of dermatitis.

Decision: This case should be included in the work injury rates as a temporary total disability on the assumption that the dermatitis resulted from the work exposure, since the patch tests indicated a connection with the chemicals used by the workman.

CASE 442. (5.2)

A packing department employee's regular job was to remove cartons from a conveyor and place them on a pallet prior to shipment. The cartons varied in size and weight, but generally weighed less than 50 pounds. One day, after handling a particular size carton for several hours, the employee felt a sudden sharp pain in his back as he placed a carton into position on the pallet. There was no slip or trip, fall, over-exertion, sudden effort, or any other apparent factor which would make this action any different from the other hundred times, approximately, that he had performed the same act. The employee lost time from work because of the continuing pain.

Decision: This case should not be counted as an industrial injury on the basis that it did not meet the requirements of paragraph 5.2 of the standard concerning back injuries.

CASE 443. (5.2)

A foreman bent over to pick up a splinter of wood (presumably broken off of a wooden pallet) from an aisle. Upon straightening up, he felt pain in his back and could not continue his work.

Decision: This case should not be included in the work injury rates on the basis that bending over to pick up a small object was not the type of an incident intended in paragraph 5.2 (a) of the standard.

CASE 444. (5.2)

Borderline case. The committee agreed this should not be used as a precedent for future rulings.

CASE 445. (5.10)

On July 27 at 6:15 P.M., a 30-year-old pressman had been working on a 12x12 in. hydraulic press for 2½ hours when he complained of feeling weak and also that his legs hurt. When he described his symptoms to his foreman he said that he hadn't felt well for two days because he hadn't been able to eat solid food for that period. The company physician found that his temperature was

100, pulse 104, that he complained of feeling weak and that his legs hurt but there were no other symptoms. The doctor sent him home for several days, diagnosing his ailment as mild heat exhaustion.

The conditions under which he was working were as follows: The line of presses on which he was working were situated between two other stacks. The temperature in the area was about 110 degrees, the temperature outside from 4 P.M. to 6 P.M., during the time that he was working, varied from 100.4 to 98 degrees. There was cross-ventilation on his line, and upon investigation it was felt that the ventilation in this particular area was better than in any other part of the pressroom. Also, he was operating the lightest presses. There were 23 other workers in his department doing essentially the same kind of work under the same conditions. In this area, as well as in another pressroom with 32 workers who had no complaints, the presses were larger and at given points the temperature was higher.

Since there were 23 workers in this area and 32 in another, none of whom were affected by the heat, could it be concluded that the sick man was not exposed to more heat than the general public, and therefore that the case was not reportable?

Decision: This injury should be included in the work injury rates as a temporary total disability. The committee felt that the temperature inside the work area was significantly higher than the outside temperature, and that it was reasonable to assume, therefore, that the employee had been subjected to a greater probability of heat exhaustion by reason of his employment than he would have been away from his employment. That other employees did not suffer similar exhaustion does not alter the fact that this employee did.

Case 446. (5.2)

Borderline case. The committee agreed this should not be used as a precedent for future rulings.

Case 447. (5.2)

A 29-year-old employee with one year experience worked with an electric line crew as a ground man. He was working on the ground and lowering a crossarm from the pole with a hand line. To retard its rapid descent he skidded along the ground on his feet and buttocks. He continued working the balance of the day and made no mention of any injury. Two days later he complained of a pain in the lower part of his back and was advised to consult a physician.

The doctor reported that the employee had a pilonoidal cyst. The skidding along the ground had aggravated the cyst and had caused inflammation. At the time of employment this employee had not told the examining physician that he had had an unsuccessful operation for the removal of the cyst as a result of a previous injury.

Decision: This injury should be included in the work injury rates on the basis that the incident of skidding along the ground had aggravated a pre-existing physical condition. The committee did not believe that the employer's ignorance of this physical condition was grounds for not counting the case.

Case 448. (5.13)

A question was raised regarding the interpretation of paragraph 5.13, "Hospitalization for Observation." The contention was that the words "from such accidents as . . ." meant "for example." In the event an employee should suffer a blow to the chest and be hospitalized to determine the extent of the injury, anticipating a possible delayed effect, would this be an observation case?

Would a case where an employee was exposed to elevated temperature, i.e., a "heat" case, fall in this classification?

A river employee fell into the water and was hospitalized after rescue due to severe exposure and shock. An employee suffered a severe electrical shock and was hospitalized for observation due to possible heart damage. Would either of these cases be classified as "observation" provided, of course, the hospital stay did not exceed 48 hours?

The question was, "What is the intent of the standard as to the exact limitations of this paragraph?"

Decision: The committee agreed that in paragraph 5.13 the words "such accidents as" mean the same thing as "for example." The committee further agreed that the code had not attempted to spell out every type of case that should be counted as "hospitalization for observation." It states (1) that there must be an injury or a suspected injury; (2) that the injured must be able to return to work without loss of time, but the physician fears there may be something which has not shown up but which will appear, if at all, within 48 hours; and (3) if anything develops within the 48 hours, all the time shall be called lost time. It should be determined by the physician whether the injured required hospitalization for treatment or for observation. If for treatment, then the case should be included in the rates as a temporary total disability.

Case 449. (1.5)

There was a fire at a gasoline filling station. Nearby was a large industrial plant, "Company A." The local fire department was called to put out the fire, but because of the nature of the fire the department called for assistance from Company A. A hypothetical question was raised: If any employee of Company A had been injured while helping to put out the fire, should such an injury be included in the work injury rates of Company A?

This problem assumes broader significance when it is considered that many companies are now entering into mutual aid agreements in connection with defense and disaster plans. Should industrial injuries arising during such emergency work be considered industrial injuries, or should they be considered as public injuries as would be the case with public paid firemen?

A third question was raised as to the situation where Company A might have several plants close together. If one plant sent aid to a second plant, and an injury developed, should the injury be charged to the plant providing the help or to the plant receiving the assistance?

Decision: The committee believed that if an employee of Company A had been injured while putting out the gasoline station fire it should be charged as an industrial injury to Company A in accordance with the ultimate extent of disability. The committee felt that the request from the local fire department was to Company A and not to any one individual, and that the employees who responded did so in their capacity as employees of the company. This should be completely distinguished from an entirely different case where certain employees were in their own personal capacity members of a volunteer fire company and responded to an emergency in this capacity.

The committee extended the same line of reasoning to apply to mutual aid plans. It was reasoned that a company entered into such plans on the basis that in the long run it would be of benefit to the company, and injuries to employees under such circumstances should still be considered as within their employment.

The committee agreed that there is no specific statement in the present standard specifying which plant or department should be charged with an injury, but suggested that the injury should be charged to the same plant or department which takes credit for the manhours exposure for the employee. In most cases this would result in the injury being charged to the plant or department which provided the assistance.

Case 450. (1.2.4)

A construction job was located approximately 120 miles from the nearest doctor. A first aid station was maintained at the job site, staffed by a first aid attendant who was neither a doctor nor a registered nurse. Near the end of a work day an employee on this construction job got a foreign body in one eye. He was given first aid care by the first aid attendant, and the next day was taken to town where he was treated by a doctor and released to return to his regular work. This trip to receive medical attention took the entire work day following the day on which the employee was injured. The employee then returned to his regular work the second day after the day on which he was injured.

Inasmuch as medical attention was not available at this remote job and the time away from his work was entirely for medical treatment, was this a lost-time injury?

Decision: This case should be included in the work injury rates on the basis that this employee was away from work for a complete shift because of the injury.

FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering copies of standards, please refer to the number following the title.

542 EXPERIMENTAL CHEMISTRY

France (AFNOR)

Petri dishes NF B 35-204
Test tubes for anaerobic cultures NF B 35-205

United Kingdom (BSI)

Performance requirements for electrically-heated laboratory drying ovens BS 2648:1955

543 ANALYTICAL CHEMISTRY

United Kingdom (BSI)

Methods of testing water used in industry BS 2690:1956

547 ORGANIC CHEMISTRY

Japan (JISC)

3 stds for testing benzoles JIS K 2411/3
Testing of crude naphthalene JIS K 2414
Testing of crude anthracene JIS K 2415
Tar testing JIS K 2416
Gentian Violet JIS K 8338

United Kingdom (BSI)

Cyclohexanone BS 2711:1956
Bromomethane (methyl bromide) Bs 2710:1956
Dipentene Bs 2712:1956

55 GEOLOGY. METEOROLOGY

Germany (DNA)

Symbols used in meteorological and geophysical formulae DIN 1358

613.6 INDUSTRIAL HYGIENE

Poland

Quick method of determination of gasolene and chlorene content in air PN Z -04033, -04037

621.1 STEAM ENGINES. BOILERS

Japan (JISC)

Cast iron boilers JIS B 8203
Spring loaded safety valve for boilers JIS B 8210
Glass gage for boilers JIS B 8211

Poland

Basic data on steam turbines from 750 to 100,000 kv PN M-35500

621.64 DEVICES FOR CONVEYANCE AND STORAGE OF GASES AND LIQUIDS

Germany (DNA)

4 stds for various couplings for compressed air conduits DIN 3481/4
3 stds for compressed air conduit couplings with single or double cock DIN 3486/8
2 stds for asbestos-cement pressure pipes DIN 19800, B1.1, 2
Packing for compressed air fittings DIN 3485

621.753 GAGES. TOLERANCES

Germany (DNA)

3 stds for sheet metal thickness gages DIN 2234/5, 2238
Survey of gages for metric screw threads, bolts, etc. DIN 2279, B1.1

621.88 MEANS OF ATTACHMENT

Bulgaria

11 stds for different types of steel rivets (bound together) BDS 32, 64, 201/3, 387, 530, 1885/8
Non-ferrous metal rivets BDS 1889
4 stds for round nuts BDS 1960/3
4 stds for different types of snap rings and collars (bound) BDS 1632, 1636/8

China (CNS)

4 stds for taper and cotter pins CNS 396/9 (B 212/5)
42 stds for different screw threads, Whitworth and metric CNS 492/539 (B 216/263)

Germany (DNA)

Lock washers for square nuts DIN 70810
Reamed bolts, hexagon head, Whitworth DIN 30335/6
Carriage bolts, countersunk head, square neck, metric DIN 605, B1.1
Studs, Whitworth thread both ends DIN 939, B1.3
Studs, metric thread both ends DIN 940, B1.1
Bolts and nuts, series for railroad cars DIN 25200
4 stds for tight fitting screws, countersunk head, long and short metric and Whitworth threads DIN 30332, B1.1, 2
4 stds for tight fitting screws, cylinder head, long and short metric and Whitworth thread DIN 3040, B1.1, 2
3 stds for Whitworth machine screws with fillister, round and countersunk heads DIN 64, 67/8
3 stds for Whitworth set screws DIN 416, 426, 552
3 stds for Whitworth thread studs DIN 938, 940, 945
Wing nuts, Whitworth screw thread DIN 313
Wing nuts, metric screw thread DIN 315
Washers, plain DIN 9021

United Kingdom (BSI)

Unified black square and hexagon bolts, screws, nuts (UNC and UNF threads) and plain washers. Normal series BS 2708:1956

Norway (NSF)

10 stds for different head-type rivets NS 730/9
Countersunk head 90°/60° square-neck plow bolts with square nuts NS 872
Countersunk head 75° fin-neck bolt with square nuts NS 873
Round-head elliptic-neck bolts with hexagon nuts NS 875
Countersunk head 75° screw with hexagon nut NS 876
Hammerhead square neck bolts with hexagon nuts NS 877

672 ARTICLES OF IRON AND STEEL

Czechoslovakia (CSN)

Weldless double loop chain CSN 023278

Israel (SII)

Cans for fruit and vegetable preserves SI 136

674 WOOD INDUSTRY

Australia (SAA)

Cross-arms from eastern and south-eastern Australian hardwoods AS 0.61-1955

France (AFNOR)

2 stds for wooden packing boxes and crates NF H 21-018/9

Poland

Sizing and marking of wood PN D-03002
Chemical analysis of caustic magnesite PN B-04534
4 stds for testing and defining various wood types PN D-95060, -04106/7, C-19001

675 LEATHER INDUSTRY

Czechoslovakia (CSN)

31 stds for different leathers and hides and their testing CSN series 7938 . . .

676 PAPER AND CARDBOARD INDUSTRY

Germany (DNA)

Paper and pasteboard for official documents, classification and properties DIN 827

Japan (JISC)

Craft paper JIS P 3402
5 stds for different test methods of paper JIS P 8119/23

Sweden (SIS)

Paper sacks (not packing sacks) SIS 711111

677 TEXTILE INDUSTRY

Denmark (DS)

Determination of twists and twisting direction of yarn DS 925
Determination of breaking load and elongation of yarn DS 926
Sampling, standard testing condition and statistical treatment of test results DS 927

France (AFNOR)

Testing natural or artificial cellulose textiles for resistance to the attack by micro-organisms NF X 41-504

Germany (DNA)

Ring spindles DIN 64040
Flat knitting machines DIN 60918
Flat hosiery machines DIN 62100
Determination of dispersion capacity of lime soap DIN 53903
Spools for weaving machines DIN 64618

Japan (JISC)

Standard gradations of acetate rayon for export JIS L 1506
5 stds for asbestos yarn, fabric and sheets JIS R 3450/4

Poland

Determination of composition of fabric PN P-04605
Quality control of fabrics PN P-04735
3 stds for quality control of natural silk fiber PN P-O-4751, -53, -63
4 stds for testing of fabrics and yarns PN P-04637, -64; P-04740/1
Spun glass fiber PN B-13090
8 stds for testing yarn and fabrics PN P-04800/1, -04803/4, -04840/1, -04783, -04786
8 stds for testing natural silk fiber and fabric PN P-04769/71, -04762, -04766/8, PN P-04773

United Kingdom (BSI)

Needleloom felts BS 2628:1955
Determination of shrinkage on washing of woven rayon and synthetic fibre fabrics BS 2651:1955

678 RUBBER INDUSTRY

Czechoslovakia (CSN)

3 stds Defaux method for determination of plastic quality of rubber compounds CSN 621410, -1415, -1438

Germany (DNA)

Rules for storing rubber products DIN 7716

India (ISI)

Plain rubber tubing IS 637-1955

Poland

9 stds for testing rubber PN C-04256, -58, -60, -63/6, -70, -72
Determination of apparent specific weight of foam rubber PN C-04257
2 stds for mechanical testing rubber PN C-04259, -04268

Rumania (CSS)

Rubber used for insulating electric wires STAS 4613-54
Rubber hoses for liquid petroleum products STAS 4614-54

United Kingdom (BSI)

Hose of natural rubber with cotton or rayon braided reinforcement BS 796:1955
Hose of natural rubber with cotton or rayon woven reinforcement BS 924:1955
Rubber joint rings for gas mains, water mains and sewers BS 2494:1955

679.5 PLASTIC INDUSTRY

France (AFNOR)

Rigid polyvinyl tubes NF T 54-003
Test of plastics for the resistance to mold PN X 41-504

Germany (DNA)

6 stds for plastics of different composition DIN 7708, Bl.1/5, B1.7
Determination of time required by thermosetting material to harden under pressure DIN 53465
Control drawing for a type moulding form of a plastic article DIN 7702
Mechanical and optical method of determining the thickness of plastic layer DIN 53370
Tensile test of plastic sheets DIN 53371
Welding of hard polyvinylchloride pieces DIN 16930

The Netherlands (HCNN)

Plastics. Determination of acetone soluble matters V 2171
Plastics. Determination of apparent density V 2174
Plastics. Determination of properties under elongation stress V 2175

Poland

Shrinkage of thermosetting mouldings PN C-89002
Determination of free phenol in phenol-formaldehyde resins PN C-89044

681 FINE MECHANISMS

Czechoslovakia (CSN)

Electric clock installations CSN 171080

Germany (DNA)

Coupling nut for pressure gages DIN 16283
13-mm typewriter ribbon on spool DIN 2103

681.8 TECHNICAL ACOUSTICS

Germany (DNA)

4 types of tapes for magnetic recording DIN 45513, Bl. 1-4
2 methods of measuring sound tracks DIN 45519, Bl. 1, 2

683 HARDWARE. IRONMONGERY

France (AFNOR)

2 stds for cast-iron window fasteners NF P 26-305, -405

685.5/7 SPORTS EQUIPMENT

The Netherlands (HCNN)

Fixed balancing beam V 1300

69 BUILDING INDUSTRY AND TRADES. BUILDING CONSTRUCTION

Austria (ÖNA)

Blast furnace slag for paving and surface finish ÖNORM B 3315
Slagwool ÖNORM B 3316
Technical rules for joinery work in buildings ÖNORM B 2217

Belgium (IBN)

Code of good practice for asphalt roofing NBN 284
Code of good practice for water draining from roof NBN 306

Czechoslovakia (CSN)

Rules for designing concrete constructions CSN 732001

France (AFNOR)

Flexible mastics NF P 84-304

Germany (DNA)

Wooden window frames DIN 18051
Steel windows for dwellings DIN 18060
2 stds for wooden window frames DIN 18052, Bl. 1, 2
Structural lime DIN 1060
Plaster, composition and production DIN 18550
Tile-base heating stoves for dwellings DIN 18899

India (ISI)

Sheet linoleum IS 653-1955
Indian standard sand IS 650-1955

The Netherlands (HCNN)

Basic technical rules for building regulations N 1055
Roughly hewn tropical wooden piles for hydraulic constructions V 2265
Roughly hewn oak piles for hydraulic constructions V 2266
Rules for vibrating concrete N 3051

New Zealand (NZSI)

Model building by-law
Part 1 Preliminary 95, Part 1, March, 1955
Part 2 Building permits 95, Part 2, March, 1955
Part 3 General design and construction 95, Part 3, March, 1955
Part 4 Basic loads to be used in design and their methods of application 95, Part 4, March, 1955
Part 5 Reinforced and plain concrete construction 95, Part 5, March, 1955
Part 6 Panel walls in framed structures 95, Part 6, March, 1955

Poland

7 stds for different types of agglomerates PN B-04536/9, -14245/7
Steel frame and brick structures PN B-03005
Sampling of cement PN B-06000
Sand for testing cement PN B-11000

United Kingdom (BSI)

Gypsum building plasters BS 1191:1955
Wood battens and counter-battens for slating and tiling BS 1318:1955

Uruguay (UNIT)

Common putty UNIT 110-55
Interior plastering UNIT 111-55

72 ARCHITECTURE

Czechoslovakia (CSN)

General standards for projection of residential constructions CSN 730020

74 TECHNICAL DRAWINGS

Switzerland (VSM)

Graphical symbols for piping VSM 10330

77 PHOTOGRAPHY

Czechoslovakia (CSN)

3 stds for backing papers of 60-mm and 40-mm films CSN 886881/3

Germany (DNA)

Sizes of photographic plates DIN 4505
Sizes of cut films DIN 4515
Accessory clip for cameras DIN 19001
35-mm films for miniature cameras DIN 4536

Japan (JISC)

6 stds for light source for determination of daylight and artificial light sensitivity of photographic negatives material JIS K 7602/7

Poland

Basic series of time exposure scales for cameras PN N-84501

USA Representatives at International Meetings

The United States will be unusually well represented at international meetings to discuss standards this year. More than 50 delegates from U. S. industry will take part in the technical committee meetings of the International Electrotechnical Commission at Munich, Germany, June 26-July 6. The meeting of the Council of the International Organization for Standardization, Geneva, Switzerland, July 16-21, will be attended by Vice Admiral G. F. Hussey, Jr, USN (Ret), Managing Director of the American Standards Association, and the USA member of the Council. He will be accompanied by J. W. McNair, Assistant Technical Director of ASA.

R. C. Sogge, president of the U. S. National Committee of IEC, will head the USA delegation to the IEC meetings.

In addition to these ISO and IEC meetings, the USA will be represented by Mr McNair at meetings of ISO's STACO (Standing Committee for the Study of Scientific Principles of Standardization) at Cambridge, England, June 18-22, and of a subcommittee on principles for the international standardization of terminology of ISO Technical Committee 37 at Geneva, July 23, 24, and 25. Admiral Hussey will represent the USA at a meeting of ISO/TC67, Material for Pipelines and Other Installations, at Geneva, July 13.

A three-man delegation named by the National Machine Tool Builders Association will represent USA at a meeting of Working Groups of ISO/TC39, Machine Tools, at London, July 9 and 13. Charles T. Blake, Warner & Swasey Company, Cleveland, is chairman of this delegation. The other members are Albert Polk, Sheffield Corporation, Dayton, Ohio, and J. Holden McKewen, Cincinnati-Bickford Division, Giddings & Lewis Machine Tool Company, Cincinnati, Ohio.

USA representation at a meeting of CISPR (International Special Committee on Radio Interference), July 24-27, at Brussels, is being arranged.

Present plans are that the following delegates will take part in the IEC meetings as indicated. * Indicates Chief Delegates.

Officers of USA delegation — R. C. Sogge, General Electric Co, President, U. S. National Committee, head of delegation; J. W. McNair, ASA, Secretary, USMC, sercretary of delegation; S. D. Hoffman, ASA, Assistant Secretary, USNC, assistant secretary of delegation.

Committee of Action, June 27, *July* 6 — S. D. Hoffman, G. F. Hussey, Jr, American Standards Association, Treasurer, USNC; J. W. McNair; H. S. Osborne, Consultant; R. C. Sogge.*

Dimensions of Motors, TC2B, July 5, 6 — M. S. Hancock,* Westinghouse Electric Co.

*Hydraulic Turbines, TC*4, *July* 3-6 — S. Logan Kerr,* Consulting Engineer.

*Steam Turbines, TC*5, *June* 30, *July* 2-4 — C. C. Franck, Westinghouse Electric Co; P. W. Knowlton, Jr, General Electric Co.; A. G. Christie,* Johns Hopkins University.

Aluminium Alloy, TC7-1, *June* 30—No representation yet available.

*Aluminium, TC*7, *July* 2, 3 — No representation yet available.

*Electric Traction Equipment, TC*9, *July* 3, 4 — No representation yet available.

International Mixed Committee on Electric Traction Equipment, CMT, July 5 — No representation yet available.

*Insulating Oils, TC*10, *June* 29, 30 — F. M. Clark,* General Electric Co.

*Measurements, TC*12-1, *June* 26, 27, 29, 30, *July* 2 — J. Avins,* RCA Laboratories.

*Radio-Transmitters, TC*12-6, *June* 28, 29 — C. C. Chambers,* University of Pennsylvania; L. M. Clement, Avco Manufacturing Co.

*Radio-Communication, TC*12, *July* 2 — C. C. Chambers,* University of Pennsylvania.

*Experts' Committee of TC*15, *June* 27— K. N. Mathes,* General Electric Co; E. F. Seaman, Bureau of Ships, Department of the Navy.

*Dielectric Strength, TC15WG/*1, *June* 26 — K. N. Mathes, General Electric Co.

*Volume and Surface Resistivity — Insulation Resistance, TC15WG/*2, *June* 26 — C. W. Ross, The Biddle Co; A. H. Scott,* National Bureau of Standards.

*Tracking, TC15WG/*3, *June* 26 — K. N. Mathes,* General Electric Co; J. R. Perkins, E. I. du Pont de Nemours & Co, Inc.

*Voltage Endurance, TC15WG/*4, *June* 27 — K. N. Mathes, General Electric Co; J. R. Perkins,* E. I. du Pont de Nemours & Co, Inc.

*Encyclopedia of Insulating Materials, TC15WG/*5, *June* 27 — T. W. Dakin,* Westinghouse Electric Corp; K. N. Mathes, General Electric Co.

*Dielectric Constant and Losses, TC15-WG/*6, *June* 28 — I. G. Easton, General Radio Co.

*Thermal Stability, TC15WG/*7, *June* 28 — J. F. Dexter,* Dow Corning Corp; K. N. Mathes, General Electric Co.

*Insulating Materials, TC*15, *June* 26, 28 — F. M. Clark, General Electric Co; T. W. Dakin, Westinghouse Electric Corp; J. F. Dexter, Dow Corning Corp; I. G. Easton, General Radio Co; A. Gunzenhauser, Transisola Inc; K. N. Mathes, General Electric Co; J. R. Perkins, E. I. du Pont de Nemours & Co, Inc; A. H. Scott,* National Bureau of Standards; M. E. Scoville, General Electric Co; E. F. Seaman, Bureau of Ships, Department of the Navy.

High Voltage Switchgear and Controlgear, TC17A, June 29, 30, *July* 2-4 — B. S. Beall, General Electric Co; L. W. Cole, Cole Electric; J. H Foote, Commonwealth Associates, Inc; E. M. Hunter, General Electric Co; J. W. May, I-T-E Circuit Breaker Co; T. G. A. Sillers,* Allis-Chalmers Mfg Co.

Low Voltage Switchgear and Controlgear, TC17B, June 26-28 — B. S. Beall, General Electric Co; G. W. Heumann,* General Electric Co; E. M. Hunter, General Electric Co; J. W. May,* I-T-E Circuit Breaker Co; T. G. A. Sillers, Allis-Chalmers Mfg Co.

*Switchgear and Controlgear, TC*17, *July* 4 — B. S. Beall, General Electric Co; J. H. Foote,* Commonwealth Associates, Inc; G. W. Heumann, General Electric Co; E. M. Hunter, General Electric Co; J. W. May, I-T-E Circuit Breaker Co; T. G. A. Sillers, Allis-Chalmers Mfg Co.

*Semi-conducter Rectifiers, TC*22-2, *July* 2-5 — E. A. Harty,* General Electric Co; I. R. Smith, Westinghouse Electric Corp.

*Power Converting Equipment, TC*22, *July* 6 — E. A. Harty,* General Electric Co; I. R. Smith, Westinghouse Electric Corp.

*Electric and Magnetic Magnitudes and Units, TC*24, *July* 4-6 — C. C. Chambers,* University of Pennsylvania.

*Insulation Co-ordination, TC*28, *July* 5, 6 — J. H. Foote, Commonwealth Associates, Inc; E. M. Hunter, General Electric Co; C. F. Wagner,* Westinghouse Electric Corp.

*Capacitors for Power Systems, TC*33, *July* 5-6 — M. E. Scoville,* General Electric Co.

*Primary Cells and Batteries, TC*35, *June* 26-28 — F. J. Wolfe,* National Carbon Co.

Instrument Transformers, TC38, July 2-4 — E. Wentz,* Westinghouse Electric Corp.

Electronic Tubes and Valves, TC39, June 27-30 — M. P. Acheson, Sylvania Electric Products Inc; M. Bareiss, Tungsol Electric, Inc; G. A. Esperson, Phillips Laboratories, Inc; V. M. Graham,* Radio-Electronics-Television Manufacturers Association; G. F. Hohn, RCA Industry Service Lab.

Joint Meeting, TC39/TC40, June 26, 27 —A. M. Okun, Bell Aircraft Corp; L. Podolsky,* Sprague Electric Co.

Capacitors and Resistors, TC40-1, July 2-6 — J. Marsten, International Resistance Co; L. Podolsky,* Sprague Electric Co; M. E. Scoville, General Electric Co; M. Whitehead, Bell Telephone Lab.

R. F. Cables and R. F. Connectors, TC40-2, July 2-6 — L. Podolsky,* Sprague Electric Co.

Piezo-electric Crystals, TC40-3, June 27-30 — R. A. Sykes,* Bell Telephone Lab.

Connectors and Switches, TC40-4, June 28-30 — A. M. Okun,* Bell Aircraft Corp.

Basic Testing Procedure, TC40-5, June 26, 27 — E. W. Bisson,* General Electric Co; E. F. Seaman, Bureau of Ships, Department of the Navy; S. Zwerling, Armed Services Electro Standards Agency.

Components for Electronic Equipment, TC40, July 6 — A. M. Okun, Bell Aircraft Corp; L. Podolsky,* Sprague Electric Co; E. F. Seaman, Bureau of Ships, Department of the Navy; R. A. Sykes, Bell Telephone Lab; C. F. Wagner, Westinghouse Electric Corp.

High-Voltage Testing Techniques, TC42, June 26-29 — J. H. Hagenguth,* General Electric Co; E. M. Hunter, General Electric Co; C. F. Wagner, Westinghouse Electric Corp.

Delegates at large — C. H. Linder, General Electric Co; H. S. Osborne, Consultant; G. F. Hussey, Jr, American Standards Association.

The second annual Charles LeMaistre Memorial Lecture, established to bring before the IEC the views of an international figure in the electrical industry on some broad aspect of electrical engineering, is being given by Charles H. Linder, vice-president-engineering, General Electric Co. Andre Lange, vice-president, Union Technique d'Electricite, and former professor of the Ecole Superieur d'Electricite delivered the first lecture.

HALL—(*Cont'd from page* 147)

ards for the benefit of the gas industry and the public it serves, and

WHEREAS, Through this endeavor he gave freely of his time and talents to the direct task of preparing requirements and assisting our industry in maintaining its high position and esteem, in addition to his multitudinous duties as an Assistant Managing Director of the American Gas Association and as Director of the AGA Laboratories, and

WHEREAS, Through his many technical contributions to the industry he had become internationally known, and had been honored by many organizations for them, and

WHEREAS, Ed, as he was affectionately called, will be long remembered for his personal qualities and attributes, and

WHEREAS, This committee, with deepest regret, realizes the irreparable loss it has suffered through the untimely death of its honored secretary,

Now Therefore Be It Resolved, That the committee express its profound grief in the untimely death of Edwin L. Hall and its deepest sympathy to his family in its bereavement, and

Be It Further Resolved, That this resolution be considered minutes of the committee and a copy be sent to the family of its beloved friend.

Your Nominations Are Invited

for the Standards Medal

for the Howard Coonley Medal

ALL members of the American Standards Association are invited to send in nominations for the 1955 recipients of the Howard Coonley Medal and the Standards Medal. Nominations should be in the hands of the Managing Director of the Association before June 30, 1955.

The Howard Coonley Medal is awarded each year to an executive who has rendered a great service in advancing the national economy through voluntary standardization. Recipients have been The Honorable Herbert Hoover, Mr Howard Coonley, Mr William Batt, Senator Ralph E. Flanders, Mr Thomas D. Jolly, and Dr Harold S. Osborne.

The Standards Medal is awarded to an individual who has shown leadership in the development and application of voluntary standards. It has been awarded to such well-known leaders in standardization as Frank O. Hoagland, Perry L. Houser, the late Dr P. G. Agnew, Dr John Gaillard, and James G. Morrow.

Nominations should be submitted in quadruplicate on plain paper without indication as to the source of the nomination. Each nomination should be accompanied by a letter of transmittal.

In order to provide complete and comparable data, forms can be obtained from ASA for filing nominations.

WHAT IS YOUR QUESTION?

Is information available on metric diameters of shafts of electric motors, gasoline engines, and other types of driven machinery used in Europe?

In addition to bulletins 3 and 4 of the International Standards Association (now the International Organization for Standardization), there are a number of standards available from individual countries. These are in their original language. The ISA bulletins are in English, French, and German. They are entitled ISA 3, Shaft Ends for Machines and Apparatus, and ISA 4, Key Sections and Apportion to Shaft Diameters. They can be ordered through the American Standards Association.

Office efficiency seems to be affected by reflectance of glare by office desks. Are there American Standards specifying permissible amount of glare?

There is an American Standard entitled Reflectances of Furniture for General Office Use, X2.1.3-1954, which recommends reflectances of 35 percent. A light desk top is less tiring to use than a dark one.

Are the temperatures used in measuring air flow of ventilating and circulating fans standardized?

Although there is no American Standard temperature for use in testing fans, a number of standards issued by national organizations may be helpful. These include standard 36-27, 1937, of the American Foundrymen's Society on testing and measuring air flow in exhaust systems; a Commercial Standard entitled Testing and Rating Ventilating Fans (Axial and Propeller Type), 178-51, issued by the Commercial Standards Division of the U. S. Department of Commerce; a Test Code for Fans, ASME (PTC 11-1946) issued by the American Society of Mechanical Engineers; and a Standard Test Code for Testing Centrifugal and Axial Fans, NAFM (Bulletin 110), of the National Association of Fan Manufacturers. This latter is also approved by the American Society of Heating and Air Conditioning Engineers.

Are there standards correlating the French standards on surface roughness with the American Standard Surface Roughness, Waviness, and Lay, B46.1-1955?

No standards exist at present but there is an international committee on surface finish which may produce such a document in the future.

AMERICAN STANDARDS UNDER WAY

Status as of April 30, 1956

ACOUSTICS, VIBRATION, SHOCK

American Standards Published

Design, Construction and Operation of Class HI (High-Impact) Shock-Testing Machine for Lightweight Equipment, Specification for, Z24.17-1955 $1.00

Ultrasonic Therapeutic Equipment, Specification for, Z24.18-1956 $.75

Sponsor: Acoustical Society of America

BUILDING AND CONSTRUCTION

American Standards Published

Support, Anchorage, and Projection of Exterior Marble Veneer 2" and Less in Thickness, A94.2-1955

Exterior Marble Used in Curtain or Panel Walls, Specifications for, A94.3-1955 In one volume $1.25

Sponsor: Marble Institute of America

Methods of Determining Areas in Office Buildings, Z65.1-1956 $.35

Sponsors: Office of Education, U. S. Department of Health, Education, and Welfare; National Association of Building Owners and Managers

American Standards Approved

Gypsum Plasters, Specifications for, ASTM C 28-55; ASA A49.3-1956 (Revision of ASTM C 28-50; ASA A49.3-1951)

Gypsum Wallboard, Specifications for, ASTM C 36-55; ASA A69.1-1956 (Revision of ASTM C 36-54; ASA A69.1-1955)

Sponsor: American Society for Testing Materials

In Standards Board

Drain Tile, Specifications for, ASTM C 4-55; ASA A6.1 (Revision of ASTM C 4-50T; ASA A.6.1-1954)

Billet-Steel Bars for Concrete Reinforcement, ASTM A 15-54T; ASA A50.1 (Revision of ASTM A 15-39; ASA A50.1-1939)

Rail-Steel Bars for Concrete Reinforcement, Specifications for, ASTM A 16-54T; ASA A50.2 (Revision of ASTM A 16-35; ASA A50.2-1936)

Structural Clay Lond-Bearing Wall Tile, Specifications for, ASTM C 34-55; ASA A74.1 (Revision of ASTM C 34-52; ASA A74.1-1953)

Concrete Building Brick, Specifications for, ASTM C 55-55; ASA A75.1 (Revision of ASTM C 55-52; ASA A75.1-1953)

Concrete Masonry Units, Methods of Sampling and Testing, ASTM C 140-55; ASA A84.1 (Revision of ASTM C 140-52; ASA A84.1-1953)

Vitrified Clay Filter Block for Trickling Filters, ASTM C 159-55; ASA A102.1 (Revision of ASTM C 159-51; ASA A102.1-1954)

Inorganic Aggregate for Use in Interior Plaster, ASTM C 35-54T; ASA A107.1 (Revision of ASTM C 35-53T; ASA A107.1-1954)

Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry (Revision of ASTM C 126-52 T; ASA A101.1-1954)

Definitions of Terms Relating to Structural Clay Tile, ASTM C 43-55; ASA A104.1 (Revision of ASTM C 43-50; ASA A104.1-1954)

Sponsor: American Society for Testing Materials

CONSUMER GOODS

American Standards Approved

Accelerated Aging of Textiles Dyed with Sulphur Colors, ASA L14.1-1956; AATCC Standard Test Method 26-52 (Revision of L14.1-1949)

Colorfastness to Acids and Alkalies, AATCC Standard Test Method 6-52; ASA L14.2-1956 (Revision of ASA L14.2-1949)

Colorfastness to Carbonizing (Wool), AATCC Standard Test Method 11-52; ASA L14.3-1956 (Revision of ASA L14.3-1949)

Colorfastness to Degumming (Silk), AATCC Standard Test Method 7-52; ASA L14.4-1956 (Revision of ASA L14.4-1949)

Colorfastness to Fulling (Wool), AATCC Standard Test Method 2-52; ASA L14.5-1956 (Revision of ASA L14.5-1949)

Colorfastness to Mill Washing and Scouring (Wool), AATCC Standard Test Method 1-52; ASA L14.6-1956 (Revision of ASA L14.6-1949)

Colorfastness to Peroxide Bleaching (Silk), AATCC Standard Test Method, 13-52; ASA L14.7-1956 (Revision of ASA L14.7-1949)

Colorfastness to Stoving (Wool), AATCC Standard Test Method 9-52; ASA L14.9-1956 (Revision of ASA L14.9-1949)

Evaluation of Ordinary Wetting Agents, AATCC Standard Test Method 17-52; ASA L14.11-1956 (Revision of ASA L14.11-1949)

Methods of Testing and Tolerances for Cotton Yarns, ASA L14.13-1956; ASTM D 180-54T (Revision of L14.13-1953; ASTM D 180-52T)

Methods of Test for Wool Content of Raw Wool (Laboratory Scale), ASA L14.40-1956; ASTM D584-54T (Revision of L14.40-1954; ASTM D 584-53T)

Colorfastness to Perspiration, AATCC Standard Test Method 15-52; ASA L14.56-1956 (Revision of ASA L14.56-1951)

Colorfastness to Chlorine Bleaching (Cotton), AATCC Standard Test Method 3-52; ASA L14.57-1956 (Revision of ASA L14.57-1951)

Colorfastness to Peroxide Bleaching (Cotton), ASA L14.58-1956; AATCC Tentative Test Method 29-52 (Revision of L14.58-1951; AATCC 29-45)

Resistance to Water Penetration (Hydrostatic Pressure Test), ASA L14.59-1956; AATCC Standard Test Method 18-52; ASTM D 583-54 part (Revision of L14.59-1951; AATCC 18-41)

Resistance to Wetting (Spray Test), ASA L14.60-1956; AATCC Standard Test Method 22-52; ASTM D 583-54 part (Revision of L14.60-1951; AATCC 22-41)

Resistance to Wetting (Static Immersion Absorption Test), ASA L14.61-1956; AATCC Tentative Test Method 21-52; ASTM D 584-54 (Revision of L14.61-1951; AATCC 21-41)

Colorfastness to Pleating, ASA L14.63-1956; AATCC Tentative Test Method 31-52 (Revision of L14.63-1951; AATCC 31-46)

Colorfastness to Mill Washing (Silk), AATCC Standard Test Method 4-52; ASA L14.70-1956

Colorfastness to Dry and Wet Heat, AATCC Tentative Test Method 5-52; ASA L14.71-1956

Colorfastness to Rubbing (Crocking), AATCC Standard Test Method 8-52; ASA L14.72-1956

Detection of Phototropism, AATCC Tentative Test Method 32-52; ASA L14.73-1956

Resistance to Water Penetration (Rain Test), AATCC Standard Test Method 35-52; ASTM D583-54, part; ASA L14.74-1956

Evaluation of Textiles for Wettability, AATCC Tentative Test Method 39-52; ASA L14.75-1956

Dimensional Changes in Textile Fabrics (Other than Cotton and Linen), AATCC Tentative Test Method 40-52; ASA L14.76-1956

Dimensional Changes in Textile Fabrics (Wool: Accelerated Test), AATCC Tentative Test Method 41-52; ASA L14.77-1956

Resistance to Water Penetration (Impact Penetration Test), AATCC Tentative Test Method 42-52; ASTM D 583-54 part, ASA L14.78-1956

Evaluation of Penetrants for Mercerization, AATCC Tentative Test Method 43-52; ASA L14.79-1956

Colorfastness to Mercerizing, AATCC Standard Test Method 51-52; ASA L14.80-1956

Accelerated Washfastness Tests Nos. IIA, IIIA and IVA Cotton, AATCC Tentative Test Method 61-54; ASA L14.81-1956

Evaluation of the Resistance of Wool Oils to Oxidation in Storage, AATCC Tentative Test Method 62-52; ASA L14.82-1956

Colorfastness to Water, AATCC Tentative Test Method 63-52; ASA L14.83-1956

Evaluation of Continuous Scouring of Raw Grease Wool, AATCC Tentative Test Method 64-52; ASA L14.84-1956

Evaluation of the Snag Resistance of Hosiery, AATCC Tentative Test Method 65-54; ASTM D 1115-54T; ASA L14.85-1956

Damage Caused by Retained Chlorine, AATCC Tentative Test Method 69-52; ASA L14.86-1956

Resistance to Wetting (Dynamic Immersion Absorption Test), AATCC Tentative Test Method 70-52; ASTM D 583-54, part; ASA L14.87-1956

Wool Hose: Accelerated Shrinkage Test, AATCC Tentative Test Method 73-53; ASA L14.88-1956

Relaxation and Felting Shrinkage of Wool Knit Fabrics (Except Hose), Accelerated Test, AATCC Tentative Test Method 74-53; ASTM D 1284-53T; ASA L14.89-1956

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

In Board of Review

Test Procedures for Household Electric Refrigerators (Mechanically Operated), Revision of B38.2-1944

Sponsors: American Society of Refrigerating Engineers; Clothing and Housing Research Branch, Agricultural Research Service, U. S. Department of Agriculture

American Standards Withdrawn

Test for Colorfastness of Textiles to Sea Water, AATCC 63-52; ASA L14.8-1949

Test for Mercerization, AATCC 51-52; ASA L14.10-1949

ELECTRIC AND ELECTRONIC

American Standards Published

Synchronous Generators, Synchronous Motors, and Synchronous Machines in General, ASA C50.1-1955 $1.80

Alternating-Current Induction Motors, Induction Machines in General, and Universal Motors, ASA C50.2-1955 $1.30

Direct-Current Generators, Direct-Current Motors, and Direct-Current Commutating Machines in General, ASA C50.4-1955 $1.50

Rotating Exciters for Synchronous Machines, ASA C50.5-1955 $0.80

Motor-Generator Sets, ASA C50.6-1955 $0.50

Dimensions for Motors and Generators, C50.8-1955 $1.00

Sponsor: Electrical Standards Board

American Standard Approved

Brushes for Electrical Machines, ASA C64.1-1956; NEMA CB1-1956

Sponsor: National Electrical Manufacturers Association

In Board of Review

Terminal Markings for Electrical Apparatus, Revision of C6.1-1944

Sponsor: National Electrical Manufacturers Association

In Standards Board

Terminal Markings for Electrical Apparatus, Revision of C6.1-1944

Sponsor: National Electrical Manufacturers Association

Cotton Braid for Insulated Wire and Cable for General Purposes, Revision of C8.12-1942

Sponsor: Electrical Standards Board

Safety for Transformer-Type Arc-Welding Machines, C33.2 [UL October 1952 (second) edition, excluding paragraphs 4, 5, and 147 through 151]

Safety for Cord Sets and Power-Supply Cords, C33.3 [UL May 1952 (third) edition, excluding paragraphs 3, 4, and 68 through 105]

Safety for Specialty Transformers, C33.4 [UL October 1952 (fourth) edition, excluding paragraphs 4, 5, and 424 through 464]

Safety for Wire Connectors and Soldering Lugs, C33.5 [UL February 1953 (third) edition, excluding paragraphs 4, 5, and 117 through 121]

Sponsor: Underwriters' Laboratories

Distribution, Power, and Regulating Transformers, and Reactors other than Current-Limiting Reactors, Revision of C57.12-1949

Requirements for Transformers, 67,000 Volts and Below; 501 through 10,000 Kva, 3-Phase; 501 through 5,000 Kva, 1 Phase, Revision of C57.12a-1954

Test Code for Distribution, Power, and Regulating Transformers, Revision of C57.22-1948

Sponsor: Electrical Standards Board

Definitions of Semiconductor Terms, ASA C60.14; IRE 7.S2

Sponsor: Joint Electron Tube Engineering Council

GAS-BURNING APPLIANCES

American Standards Published

Listing Requirements for Domestic Gas Appliance Pressure Regulators, ASA Z21.18-1955 $1.50

Revisions of American Standard Listing Requirements for Domestic Gas Appliance Pressure Regulators, Z21.18-1934

Sponsor: American Gas Association

HIGHWAY TRAFFIC

American Standards Published

Railroad-Highway Grade Crossing Protection, AAR Bulletin 5; ASA D8.1-1956 $0.50

Standards for the construction, installation, and maintenance of warning signs, automatic and non-automatic signals, and automatic gates for use at railroad-highway grade crossings.

Sponsor: Association of American Railroads

MATERIALS AND TESTING

American Standards Published

Testing Refractory Brick Under Load at High Temperatures, ASTM C 16-49; ASA A111.1-1955 $.30

Apparent Porosity, Water Absorption, Apparent Specific Gravity, and Bulk Density of Burned Refractory Brick, Methods of Test for, ASTM C 20-46; ASA A111.3-1955 $.30

Pyrometric Cone Equivalent (PCE) of Refractory Materials, Test for, ASTM C 24-46; ASA A111.4-1955 $.30

Basic Procedure in Panel Spalling Test for Refractory Brick, Method for, ASTM C 38-52; ASA A111.6-1955 $.30

Refractories for Malleable Iron Furnaces With Removable Bungs, and for Annealing Ovens, Specifications for, ASTM C 63-51; ASA A111.7-1955 $.30

Definitions of Terms Relating to Refractories, ASTM C 71-55; ASA A111.9-1955 $.30

Test for Sieve Analysis and Water Content of Refractory Materials, ASTM C 92-46; ASA A111.10-1955 $.30

Crushing Strength and Modulus of Rupture of Insulating Fire Brick at Room Temperature, Test for, ASTM C 93-54; ASA A111.11-1955 $.30

Ground Fire Clay as a Mortar for Laying-Up Fireclay Brick, Specifications for, ASTM C 105-47; ASA A111.12-1955 $.30

Panel Spalling Test for High Duty Fireclay Brick, Method of, ASTM C 107-52; ASA A111.14-1955 $.30

Reheat Change of Refractory Brick, Test for, ASTM C 113-46; ASA A111.15-1955 $.30

Panel Spalling Test for Super Duty Fireclay Brick, Method of, ASTM C 122-52; ASA A111.16-1955 $.30

Cold Crushing Strength and Modulus of Rupture of Refractory Brick and Shapes, Test for, ASTM C 133-55; ASA A111.17-1955 $.30

Size and Bulk Density of Refractory Brick, Test for, ASTM C134-41; ASA A111.18-1955 $.30

Refractories for Moderate Duty Stationary Boiler Service, Specifications for, ASTM C 153-51; ASA A111.20-1955 $.30

Warpage of Refractory Brick and Tile, Test for, ASTM C 154-41; ASA A111.-21-1955 $.30

Insulating Fire Brick, Classification of, ASTM C 155-47; ASA A111.22-1955 $.30

Fireclay Plastic Refractories for Boiler and Incinerator Services, Specifications for, ASTM C 176-47; ASA A111.23-1955 $.30

Air-Setting Refractory Mortar (Wet Type) for Boiler and Incinerator Services, Specifications for, ASTM C 178-47; ASA A111.24-1955 $.30

Combined Drying and Firing Shrinkage of Fireclay Plastic Refractories, Test for, ASTM C 179-46; ASA A111.25-1955 $.30

Panel Spalling Test for Fireclay Plastic Refractories, Method of, ASTM C 180-52; ASA A111.26-1955 $.30

Workability Index of Fireclay Plastic Refractories, Test for, ASTM C 181-47; ASA A111.27-1955 $.30

Thermal Conductivity of Insulating Fire Brick, Test for, ASTM C 182-47; ASA A111.28-1955 $.30

Bonding Strength of Air-Setting Refractory Mortar (Wet Type), Test for, ASTM C 198-47; ASA A111.29-1955 $.30

Refractoriness of Air-Setting Refractory Mortar (Wet Type), Test for, ASTM C 199-47; ASA A111.30-1955 $.30

Thermal Conductivity of Refractories, Test for, ASTM C 201-47; ASA A111.31-1955 $.30

Thermal Conductivity of Fireclay Refractories, Test for, ASTM C 202-47; ASA A111.32-1955 $.30

Reheat Change of Insulating Fire Brick, Test for, ASTM C 210-46; ASA A111.33-1955 $.30

Fireclay-Base Castable Refractories for Boiler Furnaces and Incinerators, Specifications for, ASTM C 213-55; ASA A111.34-1955 $.30

Disintegration of Fireclay Refractories in an Atmosphere of Carbon Monoxide, Test for, ASTM C 288-54; ASA A111.35-1955 $.30

Single- and Double-Screened Ground Refractory Materials, Classification of, ASTM C 316-55; ASA A111.36-1955 $.30

Sponsor: American Society for Testing Materials

In Board of Review

Method of Sample Preparation for Physical Testing of Rubber Products, ASTM D 15-55T; ASA J1.1 (Revision of ASTM D 15-54T; ASA J1.1-1955)

Sponsor: American Society for Testing Materials

In Standards Board

Copper and Copper-Base Alloy Forging Rod, Bar, and Shapes (Revision of ASTM B 124-54; ASA H7.1-1954)

Seamless Copper Water Tube, ASTM B 88-55; Specifications ASA H23.1 (Revisions of ASTM B 88-54; ASA H23.1-1954)

Seamless Copper Pipe, Standard Sizes, Specifications for, ASTM B 42-55; ASA H26.1 [Revision of ASTM B 42-54; ASA H26.1-1954 (2nd ed)]

Seamless Red Brass Pipe, Standard Sizes, Specifications for, ASTM B43-55; ASA H27.1 [Revision of ASTM B 43-54; ASA H27.1-1954 (2nd ed)]

Rolled Copper-Alloy Bearing and Expansion Plates and Sheets for Bridge and Other Structural Uses (Revision of ASTM B 100-54; ASA H31.1-1954)

Thermometers, Specifications for, ASTM E 1-55; ASA Z71.1 (Revision of ASTM E 1-53; ASA Z71.1-1954)

Sponsor: American Society for Testing Materials

Standards Submitted

Alloy Designation System for Wrought Aluminum

Submitted by: The Aluminum Association

Billet-Steel Bars for Concrete Reinforcement, ASTM A 15-54T; ASA A50.1

Rail-Steel Bars for Concrete Reinforcement, ASTM A 16-54 T; ASA A50.2

Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip, Specifications for, ASTM A 123-53; ASA G8.1

Zinc-Coated (Galvanized) Iron or Steel Sheets, Coils and Cut Lengths, Specifications for, ASTM A 93-55 T; ASA G8.2

Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, ASTM A 105-55 T; ASA G17.3

Structural Rivet Steel, ASTM A 141-55; ASA G21

Steel for Bridges and Buildings, ASTM A 7-55 T; ASA G24.1

Lightweight and Thin-Sectioned Gray Iron Castings, Specifications for, ASTM A 190-47; ASA G27.1 (Revision of ASTM A 190-40; ASA G27.1-1942)

Boiler Rivet Steel and Rivets, ASTM A 31-55; ASA G28.1

Carbon-Silicon Steel Plates of Intermediate Tensile Ranges for Fusion-Welded Boilers and Other Pressure Vessels, ASTM A 201-54T; ASA G31-1

Chrominum - Manganese - Silicon (CMS) Alloy-Steel Plates for Boilers and Other Pressure Vessels, ASTM A 202-54T; ASA G32.1

Nickel-Steel Plates for Boilers and Other Pressure Vessels, ASTM A 203-54T; ASA G33.1

Molybdenum-Steel Plates for Boilers and Other Pressure Vessels, ASTM A 204-54 T; ASA G34.1

High Tensile Strength Carbon-Silicon Steel Plates for Boilers and Other Pressure Vessels, ASTM A 212-54a T; ASA G35.1

Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, ASTM A 182-55 T; ASA G37.1

Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service, ASTM A 194-55T; ASA G38.1

Structural Steel for Locomotives and Cars, ASTM A 113-54; ASA G39.1

Structural Silicon Steel, ASTM A 94-54; ASA G41.1

High-Strength Structural Rivet Steel, ASTM A195-52 T; ASA G42.1

Axle-Steel Bars for Concrete Reinforcement, ASTM A 160-54 T; ASA G43.1

Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for General Service, ASTM A 181-55T; ASA G46.1

Mild- to Medium-Strength Carbon-Steel Castings for General Application, ASTM A 27-55; ASA G50.1

High-Strength Steel Castings for Structural Purposes, ASTM A 148-55; ASA G52.1

Method of Test for Calorific Value of Gaseous Fuels by the Water-Flow Calorimeter, ASTM D 900-38; ASA Z68.1-1953

Sponsor: American Society for Testing Materials

Reaffirmation Being Considered

Zinc-Coated (Galvanized) Iron or Steel Tie Wires, Specifications for, ASTM A 112-33; ASA G8.4-1935

Zinc-Coated (Galvanized) Iron or Steel Farm-Field and Railroad Right-of-Way Wire Fencing, Specifications for, ASTM A 116-48; ASA G8.9-1948

Zinc-Coated Iron or Steel Chain-Link Fence Fabric Galvanized After Weaving, Specifications for, ASTM A 117-33; ASA G8.5-1935

Sponsor: American Society for Testing Materials

MECHANICAL

American Standards Published

Ring-Joint Gaskets and Grooves for Steel Pipe Flanges, B16.20-1956 $1.00

Sponsors: American Society of Mechanical Engineers; Heating, Piping and Air Conditioning Contractors National Association (now The Mechanical Contractors Association of America); and the Manufacturers Standardization Society of the Valve and Fittings Industry

American Standards Approved

20-Degree Involute Fine-Pitch System for Spur and Helical Gears, B6.7-1956

Inspection of Fine-Pitch Gears, B6.11-1956
Sponsors: American Gear Manufacturers Association; American Society of Mechanical Engineers

In Board of Review

Hexagon Head Cap Screws, Slotted Head Cap Screws, Square Head Set Screws, Slotted Headless Set Screws, B18.6.2 (Revision of B18.6-1947)
Sponsors: Society of Automotive Engineers; The American Society of Mechanical Engineers

In Standards Board

Design for Fine-Pitch Worm Gearing, Revision of B6.9-1950
Sponsors: American Gear Manufacturers Association; The American Society of Mechanical Engineers

Conveyor Terms and Definitions, B75
Sponsors: Conveyor Equipment Manufacturers Association

Standard Submitted

Instrument Precision Ball Bearings, B3.10
Requested by: American Ordinance Association

MEDICAL

Project Being Considered

Standards for Anesthetic Equipment
Requested by: American Society of Anesthesiologists

OPTICS

Project Being Considered

Standards for Ophthalmic Lenses, Z80
Requested by: Indiana Interprofessional Committee on Eye Care

PAINTS AND VARNISHES

In Standards Board

Raw Linseed Oil, Specifications for, ASTM D 234-55; ASA K34.1 (Revision of ASTM D 234-48; ASA K34-1949)

Boiled Linseed Oil, Specifications for, ASTM D 260-55; ASA K35.1 (Revision of ASTM D 260-48; ASA K35-1949)

Tinting Strength of White Pigments, Method of Test for, ASTM D 322-55; ASA K56.1 (Revision of ASTM D 322-36; ASA K56-1941)
Sponsor: American Society for Testing Materials

Standards Submitted

Chemical Analysis of White Pigments, Methods of, ASTM D 34-51 T; ASA K15.1

Titanium Dioxide Pigments, Specifications for, ASTM D 476-48; ASA K45
Sponsor: American Society for Testing Materials

PETROLEUM PRODUCTS AND LUBRICANTS

American Standards Published

Test for Saponification Number of Petroleum Products by Color-Indicator Titration, ASTM D 94-55 T; ASA Z11.20-1955 $.30

Test for API Gravity of Petroleum and Its Products, ASTM D 287-55; ASA-Z11.31-1955 $0.30

Test for Distillation of Plant Spray Oils, ASTM D 447-55T; ASA Z11.43-1955 $0.30

Test for Vapor Pressure of Petroleum Products, ASTM D 323-55; ASA Z11.44-1955 $0.30

Test for Oil Content of Petroleum Waxes, ASTM D 721-55; ASA Z11.52-1955 $0.30

Test for Density and Specific Gravity of Hydrocarbon Liquids by the Lipkin Bicapillary Pycnometer, ASTM D 941-55; ASA Z11.62-1955 $0.30

Test for Sulfated Residue From New Lubricating Oils, ASTM D 874-55; ASA Z11.68-1955 $0.30

Test for Olefinic Plus Aromatic Hydrocarbons in Petroleum Distillates, ASTM D 1019-55 T; ASA Z11.71-1955 $0.30

Test for Apparent Viscosity of Lubricating Greases, ASTM D 1092-55; ASA Z11.72-1955 $0.30

Standard ASTM-IP Petroleum Measurement Tables, ASTM D 1250-55; ASA Z11.83-1955 $0.30

Test for Rust-Preventing Characteristics of Steam-Turbine Oil in the Presence of Water, ASTM D 665-54; ASA Z11.85-1955 $0.30

Test for Aromatic Hydrocarbons in Olefin-Free Gasolines by Silica Gel Adsorption, ASTM D 936-55; ASA Z11.86-1955 $0.30

Test for Oxidation Characteristics of Inhibited Steam-Turbine Oils, ASTM D 943-54; ASA Z11.87-1955 $0.30

Test for Measurement of Freezing Points of High-Purity Compounds for Evaluation of Purity, ASTM D 1015-55; ASA Z11.88-1955 $0.30

Test for Determination of Purity From Freezing Points of High-Purity Compounds, ASTM D 1016-55; ASA Z11.89-1955 $0.50

Test for Oxygen in Butadiene Vapors (Manganous Hydroxide Method), ASTM D 1021-55; ASA Z11.90-1955 $0.30

Method of Sampling Liquefied Petroleum Gases, ASTM D 1265-55; Z11.91-1955 $0.30

Test for Vapor Pressure of Liquefied Petroleum Gases, ASTM D 1267-55; ASA Z11.92-1955 $0.30
Sponsor: American Society for Testing Materials

PHOTOGRAPHY

American Standards Published

Screen Brightness of 16mm Laboratory Review Rooms, PH22.100-1955 $.25
Specifies the brightness of screens used in the projection of 16mm motion-picture prints in laboratory review rooms.
Sponsor: Society of Motion Picture and Television Engineers

American Standards Approved

16mm Film Perforated Along Two Edges, Usage in Camera, PH22.9-1956 (Revision of Z22.9-1946)

16mm Film Perforated Along Two Edges, Usage in Projector, PH22.10-1956 (Revision of Z22.10-1947)

Picture Printer Aperture for Contact Printing 16mm Positive from 16mm Negative, PH22.48-1956 (Revision of Z22.48-1946)

Magnetic Coating of 8mm Motion-Picture Film, PH22.88-1956

200-Mil Magnetic Sound Record on 16mm Film Base Perforated One Edge, PH22.97-1956

Magnetic Coating of 16mm Film Perforated Along Both Edges, PH22.101-1956
Sponsor: Society of Motion Picture and Television Engineers

In Standards Board

Method for Determining the Activity or the Relative Photographic Effectiveness of Illuminants, Revision of PH2.3-1953

Definition of a Fine Grain Developer, PH4.14

WHAT'S NEW ON AMERICAN STANDARDS PROJECTS

Safety Code for the Construction, Care and Use of Ladders, A14—

Sponsors: American Ladder Institute; American Society of Safety Engineers; National Association of Mutual Casualty Companies

Drafts of proposed American Safety Standards on portable metal ladders and on fixed ladders have been completed and approved by the sectional committee. An American Standard Safety Code for Portable Wood Ladders, A14.1-1952, has been in use since 1952.

Safety Code for Elevators, Dumb-Waiters and Escalators, A17—

Sponors: American Institute of Architects; American Society of Mechanical Engineers; National Bureau of Standards

A special committee, appointed to study elevator car overloading has been meeting monthly. This problem has arisen particularly in some types of occupancies using automatic-type elevators. The subcommittee expects to report to the sectional committee in the near future.

Proposed requirements for parking garage equipment prepared by a special subcommittee during the past year are being turned over to

the new Sectional Committee on Parking Garage Equipment, A113. The American Society of Mechanical Engineers, sponsor for the new A113 project, is now organizing the committee.

Ball and Roller Bearing, B3—

Sponsor: Mechanical Standards Board

A draft covering five series of tapered roller bearings has been approved as an American proposal for consideration by the International Organization for Standardization's Technical Committee 4. This action was taken by Sectional Committee B3 at its meeting March 29. The American Standards Association holds the secretariat for Subcommittee 2 of ISO TC 4, and the draft will be considered at a meeting of the subcommittee September 21 at Vienna. Sectional Committee B3 has named three delegates to the September meeting: Gunnar Palmgren, SKF Industries; H. O. Smith, Anti-Friction Bearing Manufacturers Association; and Harry Slusser, Timken Roller Bearing Company.

It is understood that an additional representative will be appointed by Sectional Committee B54 on Identification System for Anti-Friction Bearings.

Sectional Committee B3 also considered a proposal on instrument precision ball bearings at its March 29 meeting, and recommended that the proposal be sent to letter ballot. The committee is being asked to vote on whether the proposed standard should be sent to the American Standards Association with a recommendation for approval as American Standard and also whether it should be presented as an American proposal to ISO Technical Committee 4.

Logging and Sawmill Safety Code, B13—

Sponsor: National Bureau of Standards

J. R. Grady, Oregon Industrial Commission, is chairman of the B13 committee. Action has been started on a revision but work is progressing slowly.

Safety Code for Compressed Air Machinery and Equipment, B19—

Sponsors: American Society of Mechanical Engineers; American Society of Safety Engineers

A revision of the 1938 edition of the American Standard is nearly completed.

Safety Code for Signaling Devices and Controls for Graphic Arts Equipment, B65—

Sponsor: Research and Engineering Council of the Graphic Arts Industry

The sectional committee has authorized two new subcommittees—one to work on interlocking safety circuits and devices for presses, and another to determine whether there is a need for safety codes in binderies.

Standardization of Pallets, B69—

Sponsors: American Society of Mechanical Engineers; Society of Industrial Packaging and Materials Handling Engineers

Five subcommittees are working on surveys and preparing drafts for consideration by the sectional committee on pallets. These subcommittees are:

1. Definitions — Glen Johnson, Clark Equipment Company, Battle Creek, Michigan, *chairman;* E. H. Baird, Westinghouse and Traffic, East Pittsburgh, Pa., *vice-chairman.*
2. Surveys — Charles H. Pearce, Container and Packaging Division, Department of Commerce, *chairman;* Wm H. Sardo, Jr, National Wooden Pallet Manufacturers Association, Washington, D. C., *vice-chairman.*
3. Material — C. R. Gustafson, American Radiator and Standard Sanitary Corporation, Louisville, Kentucky, *vice-chairman.*
4. Testing — Chester J. Heinrich, Supply Research and Development Division, Naval Supply Depot, Bayonne, N. J., *chairman;* Allyn C. Beardsall, Container Laboratories, Inc, New York, *vice-chairman.*
5. Sizes — Don Horton, American Warehousemen's Association, Chicago, Illinois, *chairman;* John Mount, Insurance Company of North America, Philadelphia, Pa., *vice-chairman.*

The subcommittee on definitions is working to provide logical definitions of terms if necessary to be used by all of the technical subcommittees.

The survey subcommittee is gathering data and preparing recommendations on pallet usage, such as quantity and quality and kinds and sizes of pallets of all materials now manufactured and in use, the reasons why such pallets are needed, and information which will aid in anticipating and estimating future needs.

The subcommittee on materials is gathering data on constituent materials, on fastenings, and on chemical treatment of wood.

The subcommittee on testing, which includes work on inspection, sampling, and on test procedures, is referring to various military standards and specifications in preparing its recommendations. This subcommittee outlined its basic recommendations at a meeting January 21, 1956. Emphasis is being placed on establishment of standard sizes for transportation and collateral moved by rail or truck within the continental United States.

The testing subcommittee has established ASTM Standard D-1185 as a basis for testing procedure, subject to further review in connection with testing procedures being conducted by the Naval Research Laboratory.

The subcommittees expect to have further developments to report early this summer.

Chairman of the technical committee responsible for the work of these five subcommittees is J. E. Wiltrakis, Western Electric Company, Kearny, N. J.

Officers of Sectional Committee B69 are: F. H. Wiley, General Supervisor, Materials Handling, International Harvester Company, Chicago, Illinois, *chairman;* V. J. Reade, Whitehead Metal Products, Inc, New York, *vice-chairman;* and C. J. Carney, Jr, managing director,

Society of Industrial Packaging and Materials Handling Engineers, Chicago.

Inspection of Motor Vehicles, D7—

Sponsors: American Association of Motor Vehicle Administrators; Association of Casualty and Surety Companies (Accident Prevention Department)

Final draft of a revision of the American Standard Inspection Requirements for Motor Vehicles, D7.1-1941, has been sent to letter ballot of the sectional committee.

Storage and Handling of Anhydrous Ammonia and Ammonia Solutions, K61—

Sponsor: Compressed Gas Association

A final draft on anhydrous ammonia has been completed; the committee is continuing to work on ammonia pressure solutions.

Hazards to Children, Z66—

Sponsor: American Academy of Pediatrics

Subcommittees have been authorized by the sectional committee on Flammable Fabrics and on Children's Toys and Furniture.

Industrial Cooling Towers—

A project to develop American Standards for cooling towers was requested by a General Conference, April 17. The work requested would cover performance, tests, safety, water analysis, construction requirements, and materials. The conference asked the American Standards Association to organize the project and to invite three organizations to serve as co-sponsors. These are the Cooling Tower Institute, representing the field-erected type of tower; the Air Conditioning and Refrigeration Institute, representing the package or factory-assembled type of tower; and the American Society of Mechanical Engineers.

It was suggested that two subcommittees be set up to carry on the technical work—one on field-erected towers and the other on factory-assembled towers.

Standards Outlook

by Leo B. Moore

Standards Review

Nothing can so undermine a standards program as obsolescence. Standards are promulgated shiny and new, and like equipment become obsolete in the course of time. Standards engineers are well aware of this as a general notion and are constantly concerned lest the obsolescence go unnoticed. For this reason, certain review practices are deemed essential to a successful standardization effort.

There are three identifiable techniques which are employed to review standards. The dating technique states that every standard will undergo automatic review at the end of a specified period, say every six months. The testing technique inquires into the frequency and extent of use of the standard and from these data establishes the need of review. The complaint technique is the accumulation of information concerning a standard as to its effectiveness, and determination from these criticisms of the urgency of review.

There are chiefly two problems that this review question imposes on a standards program. One is the difficulty of maintaining sensitivity to the need for review while overcoming the human weakness for delaying the review action. Second is the impact of review activity on the output of the standards group in the form of new and needed standards. As more standards are published for use, more review work is required. Thus, a factor arises limiting the number of new standards that can be promulgated, because the group has an increasing load of surveillance and correction of existing output.

There is an obvious similarity of these notions and actions in standards to the maintenance thinking of plant engineers in connection with plant and equipment. Like standards review, maintenance is handled by schedule, machine loading, and breakdowns. The schedule indicates when the maintenance check and action will be taken; the activity of the equipment, when work should be performed; the breakdowns, when the repairs must be made. As more plant and equipment are acquired by the company, the plant engineer is so busy keeping it in top condition that he finds too little time for other matters.

To counteract these problems, plant engineers are looking at their situation within the concept of obsolescence, not maintenance. Maintenance maintains the status quo, whereas the need is one of dynamics—much the same as in standards. This obsolescence idea calls for viewing wear and tear first in the light of whether something better is available. Before we spend the time and money to keep up to date, let us see whether something will do the job more effectively. For standards engineers, this would mean—are we trying to keep an existing standard workable when a new approach or standard would be better?

•

Mr Moore is Assistant Professor of Industrial Management at Massachusetts Institute of Technology where he teaches a full-term course in industrial standardization.

American Standard Synchronous Generators, Synchronous Motors, and Synchronous Machines in General, C50.1-1955 $1.80

Covers types, service conditions, general tests, rating, temperatures and temperature rise, motor torques, over-speeds, starting, pulsating armature current, performance specification forms, efficiency, dielectric tests, voltage regulation of generators, wave shape, direction of rotation, ventilation and enclosures, terminals, and nameplate marking.

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American Standard Direct-Current Generators, Direct-Current Motors, and Direct-Current Commutating Machines in General, C50.4-1955 $1.50

Applies to practical and integral-horsepower direct current motors and generators and covers types, classification, service conditions, ratings, temperature rise, overload and commutation requirements, speed regulation and variation, efficiency, dielectric tests, compounding, radio noise level, direction of rotation, terminals, and nameplate marking.

advances--

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technical

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Abbreviations

AAN	American Association of Nurserymen, Inc	*CGA*	Compressed Gas Association
AAR	Association of American Railroads	*CS*	Commercial Standard
AATCC	American Association of Textile Chemists and Colorists	*IPCEA*	Insulated Power Cable Engineers Association
AASHO	American Association of State Highway Officials	*IRE*	Institute of Radio Engineers
ACI	American Concrete Institute	*ITE*	Institute of Traffic Engineers
AGMA	American Gear Manufacturers Association	*JAN*	Joint Army-Navy Specification
AIA	American Institute of Architects	*NBFU*	National Board of Fire Underwriters
AIEE	American Institute of Electrical Engineers	*NBS*	National Bureau of Standards
API	American Petroleum Institute	*NEMA*	National Electrical Manufacturers Association
ASRE	American Society of Refrigerating Engineers	*NFPA*	National Fire Protection Association
ASTM	American Society for Testing Materials	*R*	Reaffirmed
AWWA	American Water Works Association	*RETMA*	Radio-Electronics-Television Manufacturers Association
BLS	U. S. Bureau of Labor Statistics Bulletin	*SAE*	Society of Automotive Engineers
BMTP	U. S. Bureau of Mines Technical Paper	*SPR*	Simplified Practice Recommendation

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INCORPORATED

70 East Forty-fifth Street, New York 17, N. Y.

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American Standards

For abbreviations and explanation of reference markers see page 1

A — Civil Engineering and Construction

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A88.13-1953	Chemical Analysis of Magnesium Sulfate, Technical Grade, Methods for (ASTM C244-52)	.30
A88.14-1953	Chemical Analysis of Magnesium Chloride, Methods for (ASTM C245-52)	.30
A88.15-1953	Physical Testing of Magnesia for Magnesium Oxychloride Cements, Method of (ASTM C246-52)	.30
A88.16-1953	Ignition Loss and Active Calcium Oxide in Magnesium Oxide for Use in Magnesium Oxychloride Cements, Methods of Test for (ASTM C247-52)	.30
A88.17-1953	Bulk Density of Magnesium Oxychloride Cements, Method of Test for (ASTM C248-52)	.30
A88.18-1953	Field Consistency of Magnesium Oxychloride Cements, Method of Slump Test (ASTM C249-52)	.30
A88.19-1953	△Field Determination of Specific Gravity of Gauging Solutions for Magnesium Oxychloride Cements, Specifications for, and Method for (ASTM C250-51)	.30
A88.20-1953	Mixing Magnesium Oxychloride Cement Compositions with Gauging Solution (for Preparation of Specimens for Laboratory Tests), Method for (ASTM C251-52)	.30
A88.21-1953	Linear Contraction of Magnesium Oxychloride Cements, Method of Test for (ASTM C252-52)	.30
A88.22-1953	Linear Change of Magnesium Oxychloride Cements, Method of Test for (ASTM C253-52)	.30
A88.23-1953	Setting Time of Magnesium Oxychloride Cements, Method of Test for (ASTM C254-52)	.30
A88.24-1953	Consistency of Magnesium Oxychloride Cements by the Flow Table, Method of Test for (ASTM C255-52)	.30
A88.25-1953	Flexural Strength of Magnesium Oxychloride Cements (Using Simple Bar with Two-Point or Single-Point Loading), Method of Test for (ASTM C256-52)	.30

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●A88 — Oxychloride Cements *(Continued)*		
A88.26-1953	Compressive Strength of Magnesium Oxychloride Cements, Method of Test for (ASTM C257-52)	.30
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A89.1-1951	Reinforced Concrete, Building Code Requirements for (ACI 318-51)	.75
A90.1-1949 R1956	Manlifts, Safety Code for	.55
A93.1-1948	Indiana Limestone, Specifications for	.50
A94.1-1948	†Interior Marble, Specifications for	.50
A94.2-1955	Support, Anchorage, and Protection of Exterior Marble Veneer 2" and Less in Thickness, Specifications for the (AIA 8-B-1)	1.25
A94.3-1955	Exterior Marble Used in Curtain or Panel Walls, Specifications for (AIA 8-B-1)	
A97.1-1953	Gypsum Wallboard Interior Finishes, Specifications for	.35
A98.1-1953	Building Brick (Solid Masonry Units made from Clay or Shale), Specifications for (ASTM C62-50)	.30
A99.1-1953	Facing Brick (Solid Masonry Units made from Clay or Shale), Specifications for (ASTM C216-50)	.30
A100.1-1954	△Sewer Brick (Made from Clay or Shale) Specifications for (ASTM C32-50)	.30
A101.1-1954	Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units, Specifications for (ASTM C126-52T)	.30
A102.1-1954	Vitrified Clay Filter Block for Trickling Filters, Specifications for (ASTM C159-51)	.30
A103.1-1954	Chemical-Resistant Masonry Units, Specifications for (ASTM C279-54)	.30
A104.1-1954	Definitions of Terms Relating to Structural Clay Tile (ASTM C43-50)	.30
A105.1-1956	Gypsum Partition Tile or Block, Specifications for (ASTM C52-54)	.30
A106.1-1954	Standard Strength Perforated Clay Pipe, Specifications for (ASTM C211-50)	.30
A106.2-1955	Installing Clay Sewer Pipe, Recommended Practice for (ASTM C12-54)	.30
A106.3-1955	Standard Strength Clay Sewer Pipe, Specifications for (ASTM C13-54)	.30
A106.4-1955	Standard Strength Ceramic Glazed Clay Sewer Pipe, Specifications for (ASTM C261-54)	.30
A106.5-1955	Testing Clay Pipe, Methods of (ASTM C301-54)	.30
A107.1-1954	Inorganic Aggregates for Use in Interior Plaster, Specifications for (ASTM C35-53T)	.30
A109.1-1955	Primer for Use with Asphalt in Dampproofing and Waterproofing, Specifications for (ASTM D41-41)	.30
A109.2-1955	Asphalt-Saturated Roofing Felt for Use in Waterproofing and in Constructing Built-up Roofs, Specifications for (ASTM D226-47)	.30
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A109.4-1955	Asphalt-Saturated Asbestos Felts for Use in Waterproofing and in Constructing Built-up Roofs, Specifications for (ASTM D250-47)	.30
A109.5-1955	Asphalt-Saturated and Coated Asbestos Felts for Use in Constructing Built-up Roofs, Specifications for (ASTM D655-47)	.30
A109.6-1955	Coal-Tar Pitch, for Roofing, Dampproofing, and Waterproofing, Specifications for (ASTM D450-41)	.30
A109.7-1955	Coal-Tar Pitch for Steep Built-up Roofs, Specifications for (ASTM D654-49)	.30
A109.8-1955	Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing and Shingles, Method of Test for (ASTM D451-40)	.30
A109.9-1955	Sieve Analysis of Nongranular Mineral Surfacing for Asphalt Roofing and Shingles, Method of Test for (ASTM D452-40)	.30
A109.10-1955	Sampling and Testing Felted and Woven Fabrics Saturated with Bituminous Substances for Use in Waterproofing and Roofing, Methods of (ASTM D146-47)	.30
A109.11-1955	Steam Distillation of Bituminous Protective Coatings, Method of Test for (ASTM D255-28)	.30
A109.12-1955	Woven Cotton Fabrics Saturated with Bituminous Substances for Use in Waterproofing, Specifications for (ASTM D173-44)	.30
A111.1-1955	Testing Refractory Brick Under Load at High Temperatures, Method of (ASTM C16-49)	.30
A111.2-1955	Chemical Analysis of Refractory Materials, Methods of (ASTM C18-52)	.50
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A111.4-1955	Test for Pyrometric Cone Equivalent (P.C.E.) of Refractory Materials, Method of (ASTM C24-46)	.30
A111.5-1955	Fireclay Refractories, Classification of (ASTM C27-41)	.30
A111.6-1955	Basic Procedure in Panel Spalling Test for Refractory Brick, Method for (ASTM C38-52)	.30
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A111.9-1955	Terms Relating to Refractories, Definitions of (ASTM C71-55)	.30
A111.10-1955	Sieve Analysis and Water Content of Refractory Materials, Methods of Test for (ASTM C92-46)	.30
A111.11-1955	Crushing Strength and Modulus of Rupture of Insulating Fire Brick at Room Temperature, Methods of Test for (ASTM C93-54)	.30
A111.12-1955	Ground Fire Clay as a Mortar for Laying-Up Fireclay Brick, Specifications for (ASTM C105-47)	.30

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A111.13-1955	Refractories for Incinerators, Specifications for (ASTM C106-51)	.30
A111.14-1955	Panel Spalling Test for High Duty Fireclay Brick, Method of (ASTM C107-52)	.30
A111.15-1955	Test for Reheat Change of Refractory Brick, Method of (ASTM C113-46)	.30
A111.16-1955	Panel Spalling Test for Super Duty Fireclay Brick, Method of (ASTM C122-52)	.30
A111.17-1955	Test for Cold Crushing Strength and Modulus of Rupture of Refractory Brick and Shapes, Methods of (ASTM C133-55)	.30
A111.18-1955	Test for Size and Bulk Density of Refractory Brick, Methods of (ASTM C134-41)	.30
A111.19-1955	Test for True Specific Gravity of Refractory Materials, Method of (ASTM C135-47)	.30
A111.20-1955	Refractories for Moderate Duty Stationary Boiler Service, Specifications for (ASTM C153-51)	.30
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A111.22-1955	Insulating Fire Brick, Classification of (ASTM C155-47)	.30
A111.23-1955	Fireclay Plastic Refractories for Boiler and Incinerator Services, Specifications for (ASTM C176-47)	.30
A111.24-1955	Air-Setting Refractory Mortar (Wet Type) for Boiler and Incinerator Services, Specifications for (ASTM C178-47)	.30
A111.25-1955	Test for Combined Drying and Firing Shrinkage of Fireclay Plastic Refractories, Method of (ASTM C179-46)	.30
A111.26-1955	Panel Spalling Test for Fireclay Plastic Refractories, Method of (ASTM C180-52)	.30
A111.27-1955	Test for Workability Index of Fireclay Plastic Refractories, Method of (ASTM C181-47)	.30
A111.28-1955	Test for Thermal Conductivity of Insulating Fire Brick, Method of (ASTM C182-47)	.30
A111.29-1955	Test for Bonding Strength of Air-Setting Refractory Mortar (Wet Type), Method of (ASTM C198-47)	.30
A111.30-1955	Test for Refractoriness of Air-Setting Refractory Mortar (Wet Type), Method of (ASTM C199-47)	.30
A111.31-1955	Test for Thermal Conductivity of Refractories, Method of (ASTM C201-47)	.30
A111.32-1955	Test for Thermal Conductivity of Fireclay Refractories, Method of (ASTM C202-47)	.30
A111.33-1955	Test for Reheat Change of Insulating Fire Brick, Method of (ASTM C210-46)	.30
A111.34-1955	Fireclay-Base Castable Refractories for Boiler Furnaces and Incinerators, Specifications for (ASTM C213-55)	.30
A111.35-1955	Test for Disintegration of Fireclay Refractories in an Atmosphere of Carbon Monoxide, Method of (ASTM C288-54)	.30
A111.36-1955	Single- and Double-Screened Ground Refractory Materials, Classification of (ASTM C316-55)	.30

B — Mechanical Engineering

(Special price of series, including applicable abbreviation and symbol standards, $120.00)

●B1 — Screw Threads:

		Price
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B1.2-1951	Screw Thread Gages and Gaging	4.00

ASME Screw Thread Manual — A Shop and Drafting Room Abridgement of the American-Unified Standards for Screw Threads and Their Gages, American Standards B1.1-1949 and B1.2-1951, 68 pages, price $2.50

B1.4-1945	Screw Threads for High-Strength Bolting	*Out of print*
B1.5-1952	Acme Screw Threads	2.25
B1.7-1949 R1953	Nomenclature, Definitions, and Letter Symbols for Screw Threads	.50
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B1.9-1953	Buttress Screw Threads	1.50

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B2.1-1945	Pipe Threads	1.50
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B3.5-1951	†Tolerances for Ball and Roller Bearings	.75
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Tolerances for cylindrical fits
(A primer — not a standard), *Out-of-print*

●B5 — Small Tools and Machine Tool Elements:

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B5.1-1949	T-Slots—Their Bolts, Nuts, Tongues, and Cutters	.50
B5.3-1950	Milling Cutters, Nomenclature, Principal Dimensions, etc	2.25
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B5.11-1954	Spindle Noses and Adjustable Adapters for Multiple Spindle Drilling Heads	1.00
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B5.14-1949	Reamers	1.50
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Price

●B5 — Small Tools and Machine Tool Elements *(Continued)*

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B6.9-1950	Design for Fine-Pitch Worm Gearings (AGMA 374.02)	1.50
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B6.12-1954	Nomenclature for Gear Tooth Wear and Failure (AGMA 110.02)	1.50
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B7.1-1947	Use, Care, and Protection of Abrasive Wheels, Safety Code for the	.75
B8-1932	†Protection of Industrial Workers in Foundries, Safety Code for the	.35
B9.1-1953	Mechanical Refrigeration, Safety Code for (ASRE Circular 15-R)	1.00
B11.1-1948	†Power Presses and Foot and Hand Presses, Safety Code for	1.25
B13-1924	Logging and Sawmill Safety Code (NBS Handbook H5)	*Out of print*
B15.1-1953	Mechanical Power-Transmission Apparatus, Safety Code for	1.00

●B16 — Cast-Iron Pipe Flanges and Flanged Fittings:

B16b-1944 R1953	Cast-Iron Pipe Flanges and Flanged Fittings, Class 250	.55

Price

●B16 — Cast-Iron Pipe Flanges and Flange Fittings *(Continued)*

B16b1-1931 R1952	Cast-Iron Pipe Flanges and Flanged Fittings (for 800-lb Hydraulic Pressure)	.50
B16b2-1931 R1952	Cast-Iron Pipe Flanges and Flanged Fittings (for Maximum WSP of 25 lb)	.50
B16.1-1948 R1953	Cast-Iron Pipe Flanges and Flanged Fittings, Class 125	.65
B16.3-1951	Malleable-Iron Screwed Fittings, 150 lb	1.00
B16.4-1949 R1953	Cast-Iron Screwed Fittings, 125 and 250 lb	.60
B16.5-1953	Steel Pipe Flanges and Flanged Fittings	3.00
B16.9-1951	Steel Butt-Welding Fittings	.75
B16.10-1939 R1947	Face-to-Face Dimensions of Ferrous Flanged and Welding End Valves	.65
B16.11-1946 R1952	Steel Socket-Welding Fittings	.60
B16.12-1953	Cast-Iron Screwed Drainage Fittings	1.00
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B16.17-1949 R1953	Brass or Bronze Screwed Fittings, 250 lb	.50
B16.18-1950	Cast-Brass Solder-Joint Fittings	.75
B16.19-1951	Malleable-Iron Screwed Fittings, 300 lb	.60
B16.20-1956	Ring-Joint Gaskets and Grooves for Steel Pipe Flanges	1.00
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B16.22-1951	Wrought Copper and Bronze Solder-Joint Fittings	.75
B16.23-1955	Cast-Brass Solder-Joint Drainage Fittings	1.25
B16.24-1953	Brass or Bronze Flanges and Flanged Fittings	1.00
B16.25-1955	Butt-Welding Ends	1.00

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B17f-1930 R1955	Woodruff Keys, Keyslots, and Cutters	.50

●B18 — Bolts and Nuts:

B18.1-1955	Small Solid Rivets	1.00
B18.2-1955	Square and Hexagon Bolts and Nuts	1.25
B18.3-1954	Socket Head Cap Screws and Socket Set Screws	1.00
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B18.6.1-1956	Slotted and Recessed Head Wood Screws, (Partial Revision of B18.6-1947)	1.00
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B19-1938	Compressed Air Machinery and Equipment, Safety Code for	*Out of print*
B20.1-1947	Conveyors, Cableways, and Related Equipment, Safety Code for	.90

		Price
B24.1-1952	†Forging and Hot Metal Stamping, Safety Code for	1.00
B26-1925 R1947	Fire-Hose Couplings Screw Thread	.50
B27.1-1950	Lock Washers	.75
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B28.1-1949	†Mills and Calenders in the Rubber Industry, Safety Code for	1.00
B29.1-1950	Transmission Roller Chains and Sprocket Teeth (SAE SP-69)	3.00
B29.2-1950	Inverted Tooth (Silent) Chains and Sprocket Teeth (SAE SP-68)	2.00
B29.3-1954	Double-Pitch Power Transmission Roller Chains and Sprockets (SAE SP-90)	2.00
B29.4-1954	Double-Pitch Conveyor Roller Chains, Attachments, and Sprockets (SAE SP-91)	2.00
B29.5-1954	Attachments for Transmission Roller Chains (SAE SP-92)	1.00
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B29.7-1954	Malleable-Iron Detachable Link Chain and Attachments (SAE SP-94)	3.00
B30.1-1943 R1952	Jacks, Safety Code for	.50
B30.2-1943 R1952	Cranes, Derricks, and Hoists, Safety Code for	1.80
B31.1-1955	Code for Pressure Piping (Sections I through 7)	3.50
B31.1.8-1955	Gas Transmission and Distribution Piping Systems (Section 8 of Code for Pressure Piping B31.1-1955)	2.50
B32.1-1952	Preferred Thicknesses for Uncoated Thin Flat Metals (Under 0.250 in.)	1.00
B33.1-1935 R1947	Hose Coupling Screw Threads	.50

●B36 — Iron and Steel Pipe:

B36.1-1950	△Welded and Seamless Steel Pipe, Specifications for (ASTM A53-47)	.30
B36.2-1950	△Welded Wrought-Iron Pipe, Specifications for (ASTM A72-45)	.30
B36.3-1950	△Seamless Carbon-Steel Pipe for High-Temperature Service, Specifications for (ASTM A106-48T)	.30
B36.4-1942 R1950	△Electric-Fusion-Welded Steel Pipe (sizes 30 in. and over), Specifications for (ASTM A134-42)	.30
B36.5-1950	△Electric-Resistance-Welded Steel Pipe, Specifications for (ASTM A135-46)	.30
B36.9-1950	△Electric-Fusion-Welded Steel Pipe (sizes 4 in. to but not including 30 in.), Specifications for (ASTM A139-46)	.30
B36.10-1950	Wrought-Steel and Wrought-Iron Pipe	.65
B36.11-1942 R1950	△Electric-Fusion-Welded Steel Pipe for High-Temperature and High-Pressure Service, Specifications for (ASTM A155-42)	.30
B36.12-1945	△Lap-Welded and Seamless Steel and Lap-Welded Iron Boiler Tubes, Specifications for (ASTM A83-44)	.30
B36.13-1945	△Electric-Resistance-Welded Steel and Open-Hearth Iron Boiler Tubes, Specifications for (ASTM A178-44)	.30
B36.14-1945	△Seamless Steel Boiler Tubes for High-Pressure Service, Specifications for (ASTM A192-44)	.30

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●B36 — Iron and Steel Pipe *(Continued)*		
B36.15-1945	△Medium-Carbon Seamless Steel Boiler and Superheater Tubes, Specifications for (ASTM A210-44)	.30
B36.16-1945 R1950	△Spiral-Welded Steel or Iron Pipe, Specifications for (ASTM A211-44)	.30
B36.17-1945	△Seamless Alloy-Steel Boiler and Superheater Tubes, Specifications for (ASTM A213-44)	.30
B36.18-1945	△Electric-Resistance-Welded Steel Boiler and Superheater Tubes for High-Pressure Service, Specifications for (ASTM A226-44)	.30
B36.19-1952	Stainless Steel Pipe	1.00
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B36.23-1950	△Welded Alloyed Open-Hearth Iron Pipe, Specifications for (ASTM A253-47)	.30
B36.26-1950	△Seamless and Welded Austenitic Stainless Steel Pipe, Specifications for (ASTM A312-48T)	.30

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B38c1-1931	Domestic Refrigerators Using Ice, Code for Testing	*Out of print*
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B38.2-1944	†Household Electric Refrigerators (Mechanically Operated), Test Procedures for	.50
B38.3-1955	Methods of Rating and Testing Home Freezers	.50
B40.1-1939 R1953	Indicating Pressure and Vacuum Gages	.50
B45.1-1932	Foundry Patterns of Wood (CS19-32)	*Out of print*
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B49.1-1947	Shaft Couplings, Integrally Forged Flange Type for Hydro-Electric Units	.50
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B64.2-1954	†Five-Quart and One-Gallon Round Cans, Requirements for	☆
B64.3-1954	†Oblong Oil Cans, Requirements for	☆
B64.4-1954	†Grease Cans, Requirements for	.35
B65.1-1954	†Controls and Signaling Devices for Graphic Art Presses, Safety Code for	.50
B70.1-1954	Refrigeration Flare-Type Fittings (SAE SP-95)	2.00

C — Electrical Engineering

(Special price of series, including acoustic and applicable abbreviation and symbol standards, $115.00)

		Price
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	(Paper-bound NFPA 70; 4¼ x 7¼ in., 576 pages .....$1.00)	

●C2 — National Electrical Safety Code (NBS Handbook H30):

C2.1-1941 R1947	Installation and Maintenance of Electrical Supply Stations, Safety Rules for the (NBS Handbook H31) (Also sold separately 10¢)	2.25
C2.2-1941 R1947	Installation and Maintenance of Electric Supply and Communication Lines, Safety Rules for the (NBS Handbook H32) (Not sold separately)	
C2.3-1941 R1947	Installation and Maintenance of Electric Utilization Equipment, Safety Rules for the (NBS Handbook H33) (Not sold separately)	
C2.4-1939 R1947	Operation of Electric Equipment and Lines, Safety Rules for the (NBS Handbook H34) (Also sold separately 20¢)	
C2.5-1940 R1947	Radio Installations, Safety Rules for (NBS Handbook H35) (Also sold separately 15¢)	

●C5 — Protection against Lightning, Code for (NBS Handbook H46; NFPA 78):

C5.1-1953	Part I. Protection of Persons	.45
C5.2-1953	Part II. Protection of Buildings and Miscellaneous Property	
C5.3-1953	Part III. Protection of Structures Containing Flammable Liquids and Gases	

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C6.1-1944	Terminal Markings for Electrical Apparatus	1.00

●C7 — Bare Wire:

C7.1-1955	Soft or Annealed Copper Wire, Specifications for (ASTM B3-54T)	.30
C7.2-1953 2nd ed.	Hard-Drawn Copper Wire, Specifications for (ASTM B1-53T)	.30
C7.3-1953	Medium-Hard-Drawn Copper Wire, Specifications for (ASTM B2-52)	.30
C7.4-1953 2nd ed.	Tinned Soft or Annealed Copper Wire for Electrical Purposes, Specification for (ASTM B33-53T)	.30
C7.5-1953 2nd ed.	△Bronze Trolley Wire, Specifications for (ASTM B9-53)	.30
C7.6-1953	Copper Trolley Wire, Specifications for (ASTM B47-52)	.30
C7.7-1953	Hot-Rolled Copper Rods for Electrical Purposes, Specifications for (ASTM B49-52)	.30
C7.8-1953 2nd ed.	Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft, Specifications for (ASTM B8-53)	.30

●C7 — Bare Wire *(Continued)*

C7.9-1953	Soft Rectangular and Square Bare Copper Wire for Electrical Conductors, Specifications for (ASTM B48-52)	.30
C7.10-1953 2nd ed.	△Hard-Drawn Copper Alloy Wires for Electrical Conductors, Specifications for (ASTM B105-53)	.30
C7.11-1953	△Figure-9 Deep-Section Grooved and Figure-8 Copper Trolley Wire for Industrial Haulage, Specifications for (ASTM B116-52)	.30
C7.12-1953 2nd ed.	Rope-Lay Stranded Copper Conductors Having Bunch-Stranded Members, for Electrical Conductors, Specifications for (ASTM B172-53T)	.30
C7.13-1953 2nd ed.	△Rope-Lay Stranded Copper Conductors Having Concentric-Stranded Members, for Electrical Conductors, Specifications for (ASTM B173-53T)	.30
C7.14-1953 2nd ed.	△Bunch-Stranded Copper Conductors for Electrical Conductors, Specifications for (ASTM B174-53T)	.30
C7.15-1953 2nd ed.	Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes, Specification for (ASTM B189-53T)	.30
C7.16-1953	Cored, Annular, Concentric-Lay-Stranded Copper Conductors, Specifications for (ASTM B226-52)	.30
C7.17-1953	Hard-Drawn Copper Covered Steel Wire, Specifications for (ASTM B227-52)	.30
C7.18-1953	Concentric-Lay-Stranded Copper Covered Steel Conductors, Specifications for (ASTM B228-52)	.30
C7.19-1953	Concentric-Lay-Stranded Copper and Copper Covered Steel Composite Conductors, Specifications for (ASTM B229-52)	.30
C7.20-1953 2nd ed.	△Hard-Drawn Aluminum Wire for Electrical Purposes, Specifications for (ASTM B230-53T)	.30
C7.21-1953 2nd ed.	△Concentric-Lay-Stranded Aluminum Conductors, Hard-Drawn, Specifications for (ASTM B231-53)	.30
C7.22-1953 2nd ed.	△Concentric-Lay-Stranded Aluminum Conductors, Steel-Reinforced (ACSR), Specifications for (ASTM B232-53T)	.30
C7.23-1953	△Rolled Aluminum Rods (EC Grade) for Electrical Purposes, Specifications for (ASTM B233-52)	.30
C7.24-1951	Resistivity of Electrical Conductor Materials, Method of Test for (ASTM B193-49)	.30
C7.25-1953	△Copper Bus Bar, Rod, and Shapes, Specifications for (ASTM B187-52)	.30
C7.26-1953	△Seamless Copper Bus Pipe and Tube, Specifications for (ASTM B188-52)	.50
C7.27-1956	Aluminum Bars for Electrical Purposes (Bus Bars), Specifications for (ASTM B236-55T)	.30
C7.28-1953	△Standard Weight Zinc-Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced, Specifications for (ASTM B245-52T)	.30
C7.29-1953	Determination of Cross-Sectional Area of Stranded Conductors, Method of (ASTM B263-53T)	.30

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●C7 — Bare Wire *(Continued)*

C7.30-1956 Zinc-Coated (Galvanized) High Tensile Steel Telephone and Telegraph Line Wire, Specifications for (ASTM A326-52) ..... .30

C7.31-1956 Zinc-Coated (Galvanized) "Iron" Telephone and Telegraph Line Wire, Specifications for (ASTM A111-52) (Revision of G8.3-1944) ..... .30

C7.32-1956 Zinc-Coated Steel Wire Strand "Galvanized" and Class A ("Extra Galvanized") Specifications for (ASTM A122-54T) (Revision of G8.6-1943) ..... .30

C7.33-1956 Zinc-Coated Steel Wire Strand (Class B and Class C Coatings) Specifications for (ASTM A218-54T) (Revision of G8.11-1944) ..... .30

●C8 — Insulated Wire:

C8.1-1944 R1953 Definitions and General Standards for Wire and Cables (AIEE 30-1944) ..... .40

C8.9-1942 R1953 †Slow-Burning Wire and Cable, Specifications for ..... .35

C8.12-1942 †Cotton Braid for Insulated Wire and Cable for General Purposes, Specifications for *Out of print*

C8.13-1948 Varnished Cambric Insulated Cables, Specification for (IPCEA S-2-1946)... *Out of print*

C8.15-1942 †Metallic Coverings for Insulated Wire and Cable, Specifications for..... *Out of print*

C8.16-1953 †Rubber-Insulated Tree Wire, Specifications for ..... .50

C8.17-1954 △AO 30% Hevea Rubber Compound for Insulated Wire and Cable (ASTM D 27-52T) ..... .60

C8.18-1948 †Weather-Resistant (Weatherproof) Wire and Cable (URC Type), Specifications for ..... .60

C8.19-1939 R1953 †Weather-Resistant Saturants and Finishes for Aerial Rubber Insulated Wire and Cable, Specifications for ..... .40

C8.22-1954 △Rubber Insulated Wire and Cable, Methods of Testing (ASTM D470-52T) ..... .50

C8.23-1954 △Performance Synthetic Rubber Compound for Insulated Wire and Cable, Specifications for (ASTM D755-52T) ..... .50

C8.24-1954 △Heat-Resisting Synthetic Rubber Compound for Insulated Wire and Cable, Specifications for (ASTM D754-52T) ... .50

C8.25-1954 △Rubber Sheath Compound for Electrical Insulated Cords and Cables, Specifications for (ASTM D532-49) ..... .50

C8.26-1954 Performance Rubber Compound for Insulated Wire and Cable, Specifications for (ASTM D353-52T) ..... .50

C8.27-1954 △Heat-Resisting Rubber Compound for Insulated Wire and Cable, Specifications for (ASTM D469-52T) ..... .50

C8.28-1954 △GR-S Synthetic Rubber Sheath Compound for Electrical Insulated Cords and Cables, Specifications for (ASTM D866-46T) .... .50

C8.29-1954 △Ozone-Resistant Type Insulation for Insulated Wire and Cable, Specifications for (ASTM D574-46T) ..... .50

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●C8 — Insulated Wire *(Continued)*

C8.30-1954 Insulated Wire and Cable: Polyvinyl Insulating Compound, Specifications for (ASTM D734-50T) ..... .50

C8.31-1954 △Sheath Compound for Electrical Insulated Cords and Cables Where Extreme Abrasion Resistance Is Not Required, Specifications for (ASTM D753-49) ..... .50

C8.32-1954 △GR-M Polychloroprene Sheath Compound for Electrical Insulated Cords and Cables, Specifications for (ASTM D752-49T) ..... .50

C8.33-1954 Thermoplastic Vinyl Polymer Sheath Compound for Electrical Insulated Cords and Cables, Specifications for (ASTM D1047-49T) ..... .50

C8.34-1954 †Weather-Resistant Wire and Cable, Neoprene Type, Specifications for ..... .50

C8.36-1955 Asbestos, Asbestos-Varnished Cloth and Asbestos-Thermoplastic Insulated Wires and Cables, Requirements for (NEMA WCI 1955) 3.00

●C9 — Magnet Wire:

C9.1-1953 †Enamel-Coated Round Copper Magnet Wire (NEMA MW1-1953) ..... .50

C9.2-1953 †Cotton-Covered Round Copper Magnet Wire (NEMA MW11-1953) ..... .35

C9.3-1953 †Silk-Covered Round Copper Magnet Wire (NEMA MW21-1953) ..... .35

C9.4-1953 †Nylon-Fibre-Covered Round Copper Magnet Wire (NEMA MW22-1953) ..... .35

C9.5-1955 †Single and Heavy Vinyl Acetal-Coated Round Copper Magnet Wire ..... .75

C9.6-1955 †Heavy Vinyl Acetal-Coated Rectangular and Square Copper Magnet Wire ..... .50

C9.7-1955 †Double-Paper Single Cotton-Covered Rectangular and Square Copper Magnet Wire ..... .50

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C12-1941 Electricity Meters, Code for, including Supplement C12a-1947 ..... 2.00 (C12a-1947 sold separately....25¢)

C13-1926 Tubular Steel Poles for Electric Line Construction, Specifications for..... *Out of print*

●C16 — Radio:

C16.4-1942 †Loudspeaker Testing ..... .50

C16.5-1954 †Volume Measurements of Electrical Speech and Program Waves ..... .50

C16.11-1949 †Antennas, Methods of Testing (48 IRE 2.S2) ..... .75

C16.12-1949 †Frequency-Modulation Broadcast Receivers, Methods of Testing (47 IRE 17.S1), with Supplement, C16.12a-1951, Effects of Mistuning and Downward Modulation, Methods of Testing for (49 IRE 17.S1).. 1.25

C16.13-1949 †Television Receivers (Monochrome Service, 6-Megacycle Channel), Methods of Testing (48 IRE 22.S1) 1.00

C16.16-1949 †Vibrating Interrupters and Rectifiers for Auto Radios (Frequency 115 Cycles) (RETMA REC-113) ..... .35

		Price
●C16 — Radio *(Continued)*		
C16.18-1951	†Vehicular Communications Receivers, Methods of Testing (49 IRE 16.S1)	.50
C16.19-1951	†Amplitude-Modulation Broadcast Receivers, Methods of Testing (48 IRE 17.S1) ..	1.00
C16.20-1951	†Television Signal Levels, Resolution, and Timing of Video Switching Systems, Methods of Measurement of (50 IRE 23.S1)	.75
C16.21-1954	Definitions of Terms on Antennas and Wave Guides (54 IRE 2.S1)	.75
C16.23-1954	Measurement of Aspect Ratio and Geometric Distortion of Television Cameras and Picture Monitors, Methods of (54 IRE 23.S1)	.60
C16.25-1955	†Interference Output of Television Receivers in the Range of 300 to 10,000 kc, Methods of Measurement (54 IRE 17.S1)	.60
C16.26-1955	†Terms on Radio Aids to Navigation, Definitions of (54 IRE 12.S1)	1.00
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C18.1-1954	Dry Cells and Batteries, Specifications for (NBS Circular C559)	.25
C19.1-1943	Industrial Control Apparatus (AIEE 15-1944) ..... *Out of print*	
C29.1-1944	†Insulator Tests (AIEE 41-1944)	.80
C29.2-1955	†Wet-Process Porcelain Insulators (Suspension Type) (EEI TDJ-52, NEMA 140-1952)	1.00
C29.3-1955	†Wet-Process Porcelain Insulators (Spool Type) (EEI TDJ-53, NEMA 141-1952) ..	.50
C29.4-1955	†Wet-Process Porcelain Insulators (Strain Type) (EEI TDJ-54, NEMA 142-1952) ..	.50
C29.5-1955	†Wet-Process Porcelain Insulators (Low- and Medium-Voltage Pin Type) (EEI TDJ-55, NEMA 143-1952)	.50
C29.6-1955	†Wet-Process Porcelain Insulators (High-Voltage Pin Type) (EEI TDJ-56, NEMA 144-1952)	.50
C29.7-1955	†Wet-Process Porcelain Insulators (High-Voltage Line-Post Type) (EEI TDJ-57, NEMA 145-1952)	.50
C33.1-1954	Flexible Cord and Fixture Wire, Safety Standard for	.75
C34.1-1949	Pool Cathode Mercury-Arc Power Converters	1.20
C35.1-1943	Rotating Electrical Machinery on Railway Locomotives and Rail Cars and Trolley, Gasoline-Electric and Oil-Electric Coaches (AIEE 11-1943) ..... *Out of print*	
●C37 — Power Switchgear:	*(Special Price of Series, $5.00)*	
C37.1-1950	†Relays Associated with Electric Power Apparatus	.60
C37.2-1945 R1953	†Automatic Station Control, Supervisory, and Telemetering Equipments	.60
C37.4-1953	†Alternating-Current Power Circuit Breakers (Also sold separately.....60¢)	*
C37.4a-1954 (C57.12b-1954)	†Apparatus Bushings (Used with Power Circuit Breakers and Outdoor Transformers), Electrical and Mechanical Characteristics of (Also sold separately 25¢)	*

* Price of C37.4 through C37.12 is $3.25.

		Price
●C37 — Power Switchgear *(Continued)*		
C37.5-1953	†Rms Value of a Sinusoidal Current Wave and a Normal-Frequency Recovery Voltage, Methods for Determining the (Also sold separately.....60¢)	
C37.6-1955	†Preferred Ratings for Power Circuit Breakers, Schedules of (Also sold separately 40¢)	
C37.7-1952	†Interrupting Rating Factors for Reclosing Service Power Circuit Breakers (Also sold separately.....30¢)	3.25
C37.8-1952	†Rated Control Voltages and Their Ranges, for Power Circuit Breakers (Also sold separately.....30¢)	
C37.9-1953	†Test Code for Power Circuit Breakers (Also sold separately.....60¢)	
C37.12-1952	†Guide Specifications for Alternating-Current Power Circuit Breakers (Also sold separately.....60¢)	
C37.13-1954	†Low Voltage Air Circuit Breakers (Including Application Guide) (Also sold separately.....80¢)	
C37.14-1954	†Low Voltage Air Circuit Breakers, Test Code for (Also sold separately .....50¢)	1.60
C37.15-1954	†Rated Control Voltages and Their Ranges for Low Voltage Air Circuit Breakers (Also sold separately.....30¢)	
C37.20-1955	Switchgear Assemblies and Metal-Enclosed Bus (AIEE 27)	.60
●C39 — Electrical Measuring Instruments:		
C39.1-1955	†Electrical Indicating Instruments	2.00
C39.2-1953	†Direct-Acting Electrical Recording Instruments (Switchboard and Portable Types)	.75
C39.3-1948	†Shock-Testing Mechanism for Electrical Indicating Instruments, Specifications for	.50
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C40-1928	Storage Batteries (AIEE 36-1928) ... *Out of print*	
C42-1941	Definitions of Electrical Terms .... *Out of print*	
C48.1-1955	Electric Control Apparatus for Land Transportation Vehicles (AIEE 16)	.60
●C50 — Rotating Electrical Machinery:	*(Special price of series with binder, $8.25 without binder $6.25)*	
C50.1-1955	†Synchronous Generators, Synchronous Motors, and Synchronous Machines in General	1.80
C50.2-1955	†Alternating-Current Induction Motors, Induction Machines in General, and Universal Motors	1.30
C50.4-1955	†Direct-Current Generators, Direct-Current Motors, and Direct-Current Commutating Machines in General	1.50
C50.5-1955	†Rotating Exciters for Synchronous Machines	.80
C50.6-1955	†Motor-Generator Sets	.50
C50.8-1955	†Dimensions for Motors and Generators ..	1.00
C50.20-1954	†Polyphase Induction Motors and Generators, Test Code for	.80
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C52.3-1945	†Straight and Offset Resistance-Welding Electrodes and Electrode Holders (American War Standard)	.50

		Price
C52.4-1945	†Controls for Resistance-Welding Machines (American War Standard)	.35
C52.5-1945	†Specifications for Resistance-Welding Machines (American War Standard)	.75
C55.1-1951	Capacitors, Standards for (AIEE 18-1951)	.40

●C57 — Transformers, Regulators, and Reactors:

C57.10-1953	†Transformers, Regulators, and Reactors, Terminology for	9.00
C57.11-1953	†Transformers, Regulators, and Reactors, General Requirements for	
C57.12-1949	†Distribution, Power, and Regulating Transformers, and Reactors other than Current-Limiting Reactors	
C57.12a-1954	†Transformers — 67,000 Volts and below; 501 through 10,000 Kva, 3 Phase; 501 through 5,000 Kva, 1 Phase, Requirements for (Also sold separately....$1.00)	
C57.12b-1954 (C37.4a-1954)	†Apparatus Bushings (Used with Power Circuit Breakers and Outdoor Transformers), Electrical and Mechanical Characteristics of (Also sold separately 25¢)	
C57.13-1954	†Instrument Transformers, Requirements Terminology, and Test Code for (Also sold separately.....$2.50)	
C57.14-1948	†Constant-Current Transformers of the Moving-Coil Type	
C57.15-1949	†Step-Voltage and Induction-Voltage Regulators (Also sold separately.....50¢)	
C57.16-1948	†Current-Limiting Reactors	
C57.17-1948	†General-Purpose Specialty Transformers	
C57.18-1948	†Rectifier Transformer Equipment	
C57.22-1948	†Distribution, Power, and Regulating Transformers, Test Code for	
C57.25-1949	†Step-Voltage and Induction-Voltage Regulators, Test Code for (Also sold separately.....50¢)	
C57.28-1948	†Rectifier Transformer Equipment, Test Code for	
*C57.31	†Operation of Transformers, Regulators, and Reactors at Altitudes Greater than 3300 Feet (1000 Meters), Guide for	
*C57.33	†Loading and Operation of Instrument Transformers, Guide for (Also sold separately.....35¢)	
*C57.34	†Loading Pole-Type Constant-Current Transformers, Guide for	
*C57.36	†Loading Current-Limiting Reactors, Guide for	
C57.92	†Guide for Loading Oil-Immersed Distribution and Power Transformers (Not an American Standard) Appendix to C57.12-1949	1.25
C57.95	†Guide for Loading Oil-Immersed Step-Voltage and Induction-Voltage Regulators (Not an American Standard) Appendix to C57.15-1949	1.00
C57.19	Distribution Transformers, Conventional Subway Type (EEI 51-3; NEMA 113-1951) (Proposed; distributed for trial and study)	*Out of print*

*Withdrawn; in accordance with ASA C57 Committee action, officially approved by ASA on August 20, 1953, the words "American Standard" were removed from the titles of the guides. They now have the status of an appendix to the C57 standards as a source of engineering information.

		Price
●C57 — Transformers, Regulators, and Reactors *(Continued)*		
C57.20	Distribution Transformers, Overhead Type (EEI 53-1; NEMA 114-1953) (Proposed; distributed for trial and study)	*Out of print*

●C59 — Electrical Insulation Materials:

C59.1-1955	Testing Molded Materials Used for Electrical Insulation, Methods of (ASTM D48-54T)	.30
C59.2-1955	Testing Electrical Insulating Oils, Method of (ASTM D117-54T)	.30
C59.3-1955	Insulation Resistance of Electrical Insulating Materials, Methods of Test for (ASTM D257-54T)	.30
C59.4-1935 R1945	Rubber Matting for Use Around Electrical Apparatus (Voltage Rating of Matting, 3000 Volts), Specifications for (ASTM D178-24)	.30
C59.6-1952	Rubber Insulating Tape, Specifications for (ASTM D119-48T)	.30
C59.10-1941 R1954	Testing Molding Powders Used in Manufacturing Molded Electrical Insulators, Methods of (ASTM D392-38)	.30
C59.11-1955	Impact Resistance of Plastics and Electrical Insulating Materials, Methods of Test for (ASTM D256-54T)	.30
C59.13-1951	Testing Sheet and Plate Materials Used in Electrical Insulation, Methods of (ASTM D229-49)	.30
C59.14-1954	Testing Laminated Tubes Used in Electrical Insulation, Methods of (ASTM D348-52)	.30
C59.15-1954	Testing Laminated Round Rods Used in Electrical Insulation, Methods of (ASTM D349-52)	.30
C59.16-1952	Laminated Thermosetting Products (NEMA LP1-1951)	1.00
C59.17-1949	Fabricating Laminated Plastics, Practice for (NEMA 45-107)	.25
C59.18-1954	△Testing Shellac Used for Electrical Insulation, Methods of (ASTM D411-53)	.30
C59.19-1952	Dielectric Strength of Insulating Oils of Petroleum Origin, Method of Test for (ASTM D877-49)	.30
C59.20-1952	Vulcanized Fibre (NEMA Vul-1949)	*Out of print*
C59.21-1951	Sampling Electrical Insulating Oils, Method for (ASTM D923-49)	.30
C59.22-1951	Power Factor and Dielectric Constant of Electrical Insulating Oils of Petroleum Origin, Method of Test for (ASTM D924-49)	.30
C59.23-1951	Gas Content of Insulating Oils, Methods of Test for (ASTM D831-48)	.30
C59.24-1951	Inorganic Chlorides and Sulfates in Insulating Oils, Method of Test for (ASTM D878-49)	.30
C59.25-1951	△Detection of Free Sulphur in Electrical Insulating Oils, Method of Test for (ASTM D989-48T)	.30
C59.26-1954	△Natural Block Mica and Mica Films Suitable for Use in Fixed Mica-Dielectric Capacitors, Specifications for (ASTM D748-52T)	.30

		Price
●C59 — Electrical Insulation Materials *(Continued)*		
C59.27-1955	Natural Muscovite Mica Based on Visual Quality, Specifications for (ASTM D351-53T)	.30
C59.28-1955	Conditioning Plastics and Electrical Insulating Materials for Testing, Methods of (ASTM D618-54)	.30
●C60 — Electron Tubes:		
C60.1-1952	†Electron Tube Bases, Caps, and Terminals (RETMA ET-103-B; NEMA 500-B)	1.50
C60.2-1953	†Electron Tubes, Dimensional Characteristics of (RETMA ET-105-A; NEMA 502-B)	.80
C60.4-1950	†Designation System for Metal Electron Tube Shells (RETMA ET-112; NEMA 508)	.35
C60.5-1952	Electron Tubes, Methods of Testing (50 IRE 7.S2)	1.25
C60.6-1952	Direct Interelectrode Capacitance, Measurement of (RETMA ET-109-A; NEMA 505-A)	.80
C60.7-1952	Gages for Electron Tube Bases (RETMA ET-106-A; NEMA 503-A)	.80
C60.8-1952	Interelement Capacitances, Rating Values of (RETMA ET-114; NEMA 510)	.15
C60.11-1954	Gas Filled Radiation Counter Tubes, Methods of Testing (52 IRE 7.S2)	.75
C60.13-1954	Noise in Electron Devices, Methods of Measuring (53 IRE 7.S1)	.75
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C62.1-1944	Lightning Arresters for Alternating-Current Power Circuits (AIEE 28-1944)	*Out of print*
C63.1-1946	†Radio Interference of Electrical Components and Completed Assemblies of Electrical Equipment for the Armed Forces from 150 Kilcoycles to 20 Megacycles, Method of Measuring (American War Standard) (JAN-I-225)	*Gratis*
C63.2	Radio Noise Meter, 0.015 to 25 Megacycles/Second, Specifications for (RETMA 32-A; NEMA 102-1950) (Proposed American Standard; published for trial and criticism)	.65
C63.3	Radio Noise and Field Intensity Meters, 20 to 1000 Megacycles/Second, Specifications for (NEMA 131-1952; RETMA 41) (Proposed American Standard; published for trial and criticism)	.60
C64.1-1950	Brushes for Electrical Machines (NEMA CB1-1951)	1.50
C65.1-1954	Power-Operated Radio Receiving Appliances, Safety Standard for	.25
C67.1-1951	†Preferred Nominal Voltages, 100 Volts and Under	.25
C68.1-1953	Measurement of Test Voltage in Dielectric Tests (AIEE 4-1953)	.80
C70.1-1953	Household Automatic Electric Flatirons (NEMA DA1-1954)	1.00
C71.1-1950	Household Electric Ranges (NEMA ER1-1950)	.90
C72.1-1949	Household Automatic Electric Storage-Type Water Heaters (NEMA WH1-1949)	.90
C73-1941 R1946	Attachment Plugs and Receptacles, with Supplement C73a-1953 (NEMA WD2-1953)	*Out of print*
C73a-1953	Grounding-Type Attachment Plug Caps and Receptacles (Supplement to C73-1941)	*Out of print*
C76.1-1943	Apparatus Bushings and Test Code for Apparatus Bushings (AIEE 21-1942)	.60
C77.1-1943 R1953	Wet Tests (AIEE 29-1941)	.40
●C78 — Incandescent Lamps:		
	(Special price of series including PH22.84-1953 and PH22.85-1953, with binder, $10.00; without binder, $8.00)	
C78.100-1953	†General Service for 115-, 120-, and 125-Volt Circuits	.25
C78.101-1956	†General Service for 230- and 250-Volt Circuits	.25
C78.102-1949 R1953	†Train, Locomotive, and Country Home Service 30-34 and 60-64 Volts	.25
C78.103-1949 R1953	†Street Railway Service	.25
C78.105-1949 R1953	†Spotlight and Floodlight Service 115, 120, and 125 Volts	.25
C78.106-1953	†Infrared Lamps for 115-125 Volt Service	.25
C78.107-1953	†Projector and Reflector Spotlight and Floodlight Lamps 115, 120, and 125 Volts	.25
C78.109-1949 R1953	†Street Series Service	.25
C78.140-1954	†Miniature Incandescent Lamps	.25
C78.200-1949 R1953	†S-6 Bulb, Candelabra Screw Base and C-7 Bulb, Candelabra Screw Base	.25
C78.201-1949 R1953	†S-11 Bulb, Medium Screw Base	.25
C78.202-1949 R1953	†S-11 Bulb, Intermediate Screw Base	.25
C78.203-1949 R1953	†S-14 Bulb, Medium Screw Base	.25
C78.204-1949 R1953	†A-15 Bulb, Medium Screw Base	.25
C78.205-1949 R1953	†A-17 Bulb, Medium Screw Base	.25
C78.206-1949 R1953	†A-19 Bulb, Medium Screw Base (Over-all Length: Max 3⅛ Inches, Min 3⅛ Inches)	.25
C78.207-1949 R1953	†T-6½ Bulb, Intermediate Screw Base	.25
C78.208-1949 R1953	†T-10 Bulb, Medium Screw Base	.25
C78.209-1949 R1953	†T-10 Reflector Bulb, Medium Screw Base	.25
C78.210-1949 R1953	†A-19 Bulb, Medium Screw Base (Over-all Length: Max 4¼ Inches, Min 3⅞ Inches)	.25
C78.211-1949 R1953	†A-19 Bulb, Medium Screw Base (Over-all Length: Max 4⅞ Inches, Min 4⅝ Inches)	.25
C78.212-1949 R1953	†T-8 Bulb, Medium Screw Base	.25
C78.213-1949 R1953	†PS-25 Bulb, Three-Contact Medium Screw Base	.25
C78.214-1949 R1953	†PS-25 Bulb, Three-Contact Mogul Screw Base	.25
C78.215-1949 R1953	†A-21 Bulb, Medium Screw Base (Over-all Length: Max 4⅞ Inches, Min 4⅛ Inches)	.25
C78.216-1949 R1953	†A-21 Bulb, Medium Screw Base (Over-all Length: Max 5⅝ Inches, Min 4⅛ Inches)	.25

●C78 — Incandescent Lamps *(Continued)*

		Price
C78.217-1949 R1953	†A-21 Bulb, Medium Screw Base (Over-all Length: Max 4⅛ Inches, Min 4⅛ Inches)	.25
C78.218-1949 R1953	†A-23 Bulb, Medium Screw Base	.25
C78.219-1949 R1953	†G-30 Bulb, Three-Contact Mogul Screw Base	.25
C78.220-1949 R1953	†PS-25 Bulb, Medium Screw Base	.25
C78.221-1949 R1953	†PS-30 Bulb, Medium Screw Base	.25
C78.223-1949 R1953	†PS-35 Bulb, Mogul Screw Base	.25
C78.224-1949 R1953	†PS-40 Bulb, Mogul Screw Base	.25
C78.225-1949 R1953	†PS-52 Bulb, Mogul Screw Base	.25
C78.226-1949 R1953	†P-25 Bulb, Medium Screw Base	.25
C78.233-1949 R1953	†G-30 Bulb, Medium Screw Base	.25
C78.234-1949 R1953	†G-40 Bulb, Mogul Screw Base (Over-all Length: Max 7⅛ Inches, Min 6½ Inches)	.25
C78.235-1949 R1953	†G-40 Bulb, Mogul Screw Base (Over-all Length: Max 8 Inches, Min 7⅛ Inches)	.25
C78.236-1949 R1953	†R-40 Bulb, Medium Skirted Screw Base	.25
C78.237-1949 R1953	†R-40 Bulb, Medium Screw Base	.25
C78.238-1949 R1953	†PAR-38 Bulb, Medium Skirted Screw Base	.25
C78.245-1949 R1953	†PS-25 Bulb, Mogul Screw Base	.25
C78.248-1949 R1953	†T-64 Bulb, Mogul Bipost Base	.25
C78.251-1953	†R-30 Bulb Medium Screw Base	.25
C78.370-1956	Code for the Designation of Photo Lamps	.50

●C78 — Electric Discharge Lamps, Dimensional and Electrical Characteristics of:

(Special price of series with binder, $8.00; without binder, $6.00)

C78.375-1955	Guide for Electrical Measurements of Fluorescent Lamps	.15
C78.400-1951	†4-Watt T-5 Pre-heat Start	.25
C78.401-1951	†6-Watt T-5 Pre-heat Start	.25
C78.402-1951	†8-Watt T-5 Pre-heat Start	.25
C78.403-1951	†14-Watt T-12 Pre-heat Start	.25
C78.404-1951	†15-Watt T-8 Pre-heat Start	.25
C78.405-1951	†15-Watt T-12 Pre-heat Start	.25
C78.406-1955	†20-Watt T-12 Pre-heat Start	.25
C78.407-1951	†30-Watt T-8 Pre-heat Start	.25
C78.408-1951	†40-Watt T-12 Pre-heat Start	.25
C78.411-1956	†90-Watt T-17 Pre-heat Start Fluorescent Lamp	.25
C78.413-1951	†32-Watt T-10 12-Inch Circular Pre-heat Start	.25
C78.600-1955	†40-Watt T-12 Instant-Start	.25
C78.601-1951	†40-Watt T-17 Instant-Start	.25
C78-700	†40-Watt T-12 Rapid Start Fluorescent Lamp (Proposed American Standard: published for trial and criticism)	.25

●C78 — Electric Discharge Lamps *(Continued)*

		Price
C78.801-1951	†42-Inch T-6 Instant-Start Single-Pin Hot-Cathode	.25
C78.803-1951	†64-Inch T-6 Instant-Start Single-Pin Hot-Cathode	.25
C78.805-1951	†72-Inch T-8 Instant-Start Single-Pin Hot-Cathode	.25
C78.807-1951	†96-Inch T-8 Instant-Start Single-Pin Hot-Cathode	.25
C78.808-1955	†48-Inch T-12 Instant-Start Single-Pin Hot-Cathode	.25
C78.809-1955	†72-Inch T-12 Instant-Start Single-Pin Hot-Cathode	.25
C78.810-1955	†96-Inch T-12 Instant-Start Single-Pin Hot-Cathode	.25
C78.1100-1951	†20-Millimeter 52-Inch Cold-Cathode	.25
C78.1101-1951	†20-Millimeter 64-Inch Cold-Cathode	.25
C78.1102-1951	†20-Millimeter 76-Inch Cold-Cathode	.25
C78.1103-1951	†20-Millimeter 84-Inch Cold-Cathode	.25
C78.1104-1951	†25-Millimeter 93-Inch Cold-Cathode	.25
C78.1105-1951	†20-Millimeter 93-Inch Cold-Cathode	.25

●C78 — Bactericidal Lamps:

C78.1200-1951	†8-Watt T-5	.25
C78.1201-1951	†15-Watt T-8	.25
C78.1202-1951	†30-Watt T-8	.25

●C78 — Fluorescent Lamp Auxiliaries (*see also* Fluorescent Lamp Ballasts, C82):

C78.180-1956	†Fluorescent Lamp Starters, Specifications for	.50
C78.181-1956	†Fluorescent Lamp Starters, Method of Testing	.50

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C79.1-1954	†Glass Bulbs Intended for Use with Electron Tubes and Electric Lamps, Nomenclature for	.50
C79.2-1954	†Molded Glass Flares Intended for Use with Electron Tubes and Electric Lamps, Nomenclature for	.35

●C80 — Conduit:

C80.1-1953	†Rigid Steel Conduit, Zinc Coated, Specification for (NEMA 110-1953)	.50
C80.2-1953	†Rigid Steel Conduit, Enameled, Specification for (NEMA 111-1953)	.35
C80.3-1950	†Electrical Metallic Tubing, Zinc Coated, Specification for (NEMA 112-1950)	.35

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C81.1-1951	†Rolled Threads for Screw Shells of Electric Lamp Holders and for Screw Shells of Unassembled Lamp Bases, Dimensions for	.35

●C82 — Fluorescent Lamp Ballasts:

C82.1	†Fluorescent Lamp Ballasts, Specification for (Proposed American Standard; published for trial and criticism)	.35

●C82 — Fluorescent Lamp Ballasts *(Continued)*

		Price
C82.2	†Fluorescent Lamp Ballasts, Method of Measurement of (Proposed American Standard; published for trial and criticism)	.50
C82.3	†Fluorescent Lamp Reference Ballasts, Specification for (Proposed American Standard; published for trial and criticism)	.35

●C83 — Components for Electronic Equipment:

C83.1-1949 R1954	†Color Codes: Numerical Values, Decimal Multipliers, and Tolerances for Components for Electronic Equipment (RETMA GEN-101)	.35
C83.2-1949 R1954	†Components for Electronic Equipment, Preferred Values for (RETMA GEN-102)	.35
C83.3-1951 R1954	†Piezoelectric Crystals, Terminology for (49 IRE 14.S1)	.80
C83.4-1955	Ceramic Dielectric Capacitors, Classes 1 and 2, Recommendations for (RETMA REC-107-A)	.40
C83.6-1955	Fixed Wire Wound Resistors, Recommendations for (RETMA REC-117)	.30
C83.7-1955	Variable Control Resistors, Recommendations for (RETMA REC-121-B)	.30
C83.8-1955	Forms, Dimensions, and Ratings of Panel Lamps (RETMA REC-137)	.25

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C84.1-1954	Preferred Voltage Ratings for A-C Systems and Equipment (EEI R-6; NEMA 117)	.70

For standard abbreviations and symbols in electrical engineering, see Y, Drawings and Symbols.

D — Automotive

D6.1-1955	Uniform Traffic Control Devices for Streets and Highways, Manual on	1.00
D7.1-1941	†Inspection Requirements for Motor Vehicles	*Out of print*
D8.1-1956	Railroad Highway Grade Crossing Protection (AAR Bulletin 5)	.50
D10.1-1951	Adjustable Face Traffic Control Signal Head Standards (ITE Technical Report 1)	.50
D11.1-1943	Pre-Timed, Fixed Cycle, Traffic Signal Controllers (ITE Technical Report 2)	.50
D12.1-1953	Street and Highway Lighting	.50
D13.1-1950	Traffic-Actuated, Traffic Signal Controllers and Detectors, Specifications for	.50
D14.1-1955	Boiling Point of Engine Antifreezes, Method of Test for (ASTM D1120-1953)	.30
D14.2-1955	Reserve Alkalinity of Concentrated Engine Antifreezes, Method of Test for (ASTM D1121-54)	.30
D14.3-1955	Specific Gravity of Concentrated Engine Antifreezes by the Hydrometer, Method of Test for (ASTM D1122-53)	.30
D14.4-1955	Sampling and Preparing Aqueous Solutions of Engine Antifreeze for Testing Purposes, Method for (ASTM D1176-54)	.30
D14.5-1955	Freezing Point of Aqueous Engine Antifreeze Solution (ASTM D1177-54)	.30

G — Ferrous Materials and Metallurgy

G8.1-1947	△Zinc (Hot-Galvanized) Coatings on Structural Steel Shapes, Plates and Bars, and Their Products, Specifications for (ASTM A123-47; AASHO M111-35)	.30
G8.2-1951	△Zinc-Coated (Galvanized) Iron or Steel Sheets, Specifications for (ASTM A93-50T)	.30
G8.3-1944	Revised and Redesignated as C7.31-1956	
G8.4-1935 R1956	Zinc-Coated (Galvanized) Iron or Steel Tie Wires, Specifications for (ASTM A112-33)	.30
G8.6-1943	Revised and Redesignated as C7.32-1956	
G8.8-1937	△Zinc-Coated (Galvanized) Wrought Iron Sheets, Specifications for (ASTM A163-36)	.30
G8.9-1948 R1956	Zinc-Coated (Galvanized) Iron or Steel Farm-Field and Railroad Right-of-Way Wire Fencing, Specifications for (ASTM A116-48)	.30
G8.10-1948	Zinc-Coated (Galvanized) Iron or Steel Barbed Wire, Specifications for (ASTM A121-48)	.30
G8.11-1944	Revised and Redesignated as C7.33-1956	
G8.12-1956	Test for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles, Methods of (ASTM A90-53)	.30
G8.13-1956	Safeguarding Against Embrittlement of Hot Galvanized Structural Steel Products and Procedure for Detecting Embrittlement, Recommended Practice for (ASTM A143-46)	.30
G8.14-1956	Zinc Coating (Hot-Dip) on Iron and Steel Hardware, Specifications for (ASTM A153-53)	.30
G17.1-1944	Carbon-Steel Castings for Valves, Flanges, and Fittings for High-Temperature Service, Specifications for (ASTM A95-44)	.30
G17.3-1947	Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, Specifications for (ASTM A105-46)	.30
G21-1939	△Structural Rivet Steel, Specifications for (ASTM A141-39)	.50
G23-1939	Uncoated Wrought Iron Sheets, Specifications for (ASTM A162-39)	.30
G24.1-1947	△Steel for Bridges and Buildings, Specifications for (ASTM A7-46)	.50
G25.1-1948	Gray Iron Castings, Specifications for (ASTM A48-48; AASHO M105)	.30
G26.1-1942	Cast-Iron Culvert Pipe, Specifications for (ASTM A142-38)	.30
G27.1-1942	△Lightweight and Thin-Sectioned Gray Iron Castings, Specifications for (ASTM A190-40)	.30
G28.1-1942	△Boiler Rivet Steel and Rivets, Specifications for (ASTM A31-40)	.30
G31.1-1947	△Carbon-Silicon Steel Plates of Ordinary Tensile Ranges for Fusion-Welded Boilers and Other Pressure Vessels, Specifications for (ASTM A201-46)	.50
G32.1-1947	△Chrome-Manganese-Silicon (CMS) Alloy-Steel Plates for Boilers and Other Pressure Vessels, Specifications for (ASTM A202-46)	.50

		Price
G33.1-1945	△Low-Carbon Nickel-Steel Plates for Boilers and Other Pressure Vessels, Specifications for (ASTM A203-44)	.50
G34.1-1947	△Molybdenum-Steel Plates for Boilers and Other Pressure Vessels, Specifications for (ASTM A204-46)	.50
G35.1-1947	△High Tensile Strength Carbon-Silicon Steel Plates for Boilers and Other Pressure Vessels (Plates 4½ in. and Under in Thickness), Specifications for (ASTM A212-46)	.50
G37.1-1949	△Forged or Rolled-Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, Specifications for (ASTM A182-48T)	.30
G38.1-1952	△Carbon and Alloy-Steel Nuts for Bolts for High-Pressure and High-Temperature Service, Specifications for (ASTM A194-51)	.30
G39.1-1947	△Structural Steel for Locomotives and Cars, Specifications for (ASTM A113-46)	.50
G41.1-1947	△Structural Silicon Steel, Specifications for (ASTM A94-39)	.50
G42.1-1942	△High-Strength Structural Rivet Steel, Specifications for (ASTM A195-41)	.50
G43.1-1942	△Axle-Steel Bars for Concrete Reinforcement, Specifications for (ASTM A160-39)	.30
G44.1-1942	Fabricated Steel Bar or Rod Mats for Concrete Reinforcement, Specifications for (ASTM A184-37)	.30
G45.1-1942	Welded Steel Wire Fabric for Concrete Reinforcement, Specifications for (ASTM A185-37; AASHO M55-37)	.30
G46.1-1947	△Forged or Rolled Steel Pipe Flanges for General Service, Specifications for (ASTM A181-46)	.30
G48.1-1953	Malleable Iron Castings, Specifications for (ASTM A47-52; AASHO M106)	.30
G49.1-1948	Cupola Malleable Iron, Specifications for (ASTM A197-47)	.30
G50.1-1945	△Carbon-Steel Castings for Miscellaneous Industrial Uses, Specifications for (ASTM A27-44)	.30
G52.1-1944	△Alloy-Steel Castings for Structural Purposes, Specifications for (ASTM A148-44)	.30

H — Nonferrous Materials and Metallurgy

H7.1-1954 2nd ed.	Copper and Copper-Base Alloy Forging Rod, Bar, and Shapes, Specifications for (ASTM B124-54)	.50
H8.1-1953 2nd ed.	Free-Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines, Specifications for (ASTM B16-52)	.50
H17.1-1942	Lake Copper Wire Bars, Cakes, Slabs, Billets, Ingots, and Ingot Bars, Specifications for (ASTM B4-42)	.30
H17.2-1943	Electrolytic Copper Wire Bars, Cakes, Slabs, Billets, Ingots, and Ingot Bars, Specifications for (ASTM B5-43; AASHO M110-45)	.30
H23.1-1954	Seamless Copper Water Tube, Specifications for (ASTM B88-54)	.50
H24.1-1949	Slab Zinc (Spelter), Specifications for (ASTM B6-49; AASHO M120)	.30
H25.1-1943	Rolled Zinc, Specifications for (ASTM B69-39; AASHO M113-39)	.30
H26.1-1954 2nd ed.	△Seamless Copper Pipe, Standard Sizes, Specifications for (ASTM B42-54)	.50
H27.1-1954 2nd ed.	Seamless Red Brass Pipe, Standard Sizes, Specifications for (ASTM B43-54)	.50
H28.1-1953	Bronze Castings in the Rough for Locomotive Wearing Parts, Specifications for (ASTM B66-52; AAR M-503)	.30
H29.1-1953	Car and Tender Journal Bearings, Lined, Specifications for (ASTM B67-52; AAR M-501)	.30
H30.1-1954	Copper-Silicon Alloy Wire for General Purposes, Specifications for (ASTM B-99 54)	.50
H31.1-1954	Rolled Copper-Alloy Bearing and Expansion Plates and Sheets for Bridge and Other Structural Uses, Specifications for (ASTM B100-54; AASHO M108)	.30
H32.1-1953 2nd ed.	Brass Wire, Specifications for (ASTM B134-52)	.50
H33.1-1954 2nd ed.	Leaded Red Brass (Hardware Bronze) Rod, Bar, and Shapes, Specifications for (ASTM B140-54)	.50
H34.1-1955	Nickel Seamless Pipe and Tubing, Specifications for (ASTM B161-49T)	.30
H34.2-1955	Nickel-Copper Alloy Seamless Pipe and Tubing, Specifications for (ASTM B165-49T)	.30
H34.3-1955	Nickel-Chromium-Iron Alloy Seamless Pipe and Tubing, Specifications for (ASTM B167-49T)	.30

J — Rubber

J1.1-1955	Sample Preparation for Physical Testing of Rubber Products, Methods of (ASTM D15-54T)	.30
J2.1-1953	Tension Testing of Vulcanized Rubber, Methods of (ASTM D412-51T)	.30
J3.1-1942	Adhesion of Vulcanized Rubber (Friction Test), Methods of Test for (ASTM D413-39)	.30
J4.1-1954	Accelerated Aging of Vulcanized Rubber by the Oxygen-Pressure Method, Method of Test for (ASTM D572-53)	.30
J5.1-1954	Accelerated Aging of Vulcanized Rubber by the Oven Method, Method of Test for (ASTM D573-53)	.30

●J6 — Specifications for Rubber Protective Equipment for Electrical Workers:

J6.1-1950	Rubber Insulating Line Hose (ASTM D1050-49T)	.75
J6.2-1950	Rubber Insulator Hoods (ASTM D1049-49T)	
J6.4-1950	Rubber Insulating Blankets (ASTM D1048-49T)	
J6.5-1950	Rubber Insulating Sleeves (ASTM D1051-49T)	
J6.6-1952	Rubber Insulating Gloves, Specifications for (ASTM D120-52T)	
J6.3-1945	†Leather Protective Gloves (American War Standard)	.25

K — Chemical Industry

		Price
K13.1-1950	†Identification of Gas-Mask Canisters, Safety Code for	.35
K15.1-1947	△Chemical Analysis of White Pigments, Methods of (ASTM D34-47)	.30
K16.1-1944	Chemical Analysis of Dry Red Lead, Methods of (ASTM D49-44)	.30
K18.1-1948	Laboratory Sampling and Analysis of Coal and Coke, Methods of (ASTM D271-48)	.50
K20.1-1936	Cubic Foot Weight of Crushed Bituminous Coal, Method of Test for (ASTM D291-29)	.30
K20.2-1936	Cubic Foot Weight of Coke, Method of Test for (ASTM D292-29)	.30
K20.3-1951	Tumbler Test for Coke, Method of (ASTM D294-50)	.30
K20.4-1948	Drop Shatter Test for Coke, Method of (ASTM D141-48)	.30
K20.5-1936	Volume of Cell Space of Lump Coke, Method of Test for (ASTM D167-24)	.30
K21.1-1953	Toluene Insoluble Solid Matter in Rosin (Chiefly Sand, Chips, Dirt, and Bark), Method of Test for (ASTM D269-52)	.30
K22.1-1944	Zinc Oxide, Specifications for (ASTM D79-44)	.30
K23.1-1943	Basic-Carbonate White Lead, Specifications for (ASTM D81-43)	.30
K24-1941	Red Lead, Specifications for (ASTM D83-41)	.30
K25-1941	△Mineral Iron Oxide, Specifications for (ASTM D84-41)	.30
K26.1-1947	Lampblack, Specifications for (ASTM D209-47)	.30
K27.1-1947	Chrome Yellow and Chrome Orange, Specifications for (ASTM D211-47)	.30
K28.1-1947	Reduced Chrome Green, Specifications for (ASTM D213-47)	.30
K29.1-1947	Iron Blue, Specifications for (ASTM D261-47; AASHO M131)	.30
K32.1-1953	Spirits of Turpentine, Specifications for (ASTM D13-51)	.30
K33-1937	△Sampling and Testing Turpentine, Methods of (ASTM D233-36)	.30
K34.1-1949	Raw Linseed Oil, Specifications for (ASTM D234-48; AASHO M125-49)	.30
K35.1-1949	Boiled Linseed Oil, Specifications for (ASTM D260-48)	.30
K36.1-1947	Bone Black, Specifications for (ASTM D210-47)	.30
K37.1-1946	Chrome Oxide Green, Specifications for (ASTM D263-46)	.30
K41.1-1953 R1954	Specific Gravity of Pigments, Methods of Test for (ASTM D153-54)	.30
K42.1-1945	Coarse Particles in Pigments, Pastes, and Paints, Methods of Test for (ASTM D185-45)	.30
K44.1-1951	Yellow, Orange, Red, and Brown Pigments Containing Iron and Manganese, Methods of Chemical Analysis of (ASTM D50-50)	.30
K45-1941	△Titanium Dioxide Pigments, Specifications for (ASTM D476-41)	.30
K47.1-1945	Basic Sulfate White Lead, Specifications for (ASTM D82-44)	.30
K48-1941	Blue Lead; Basic Sulfate, Specifications for (ASTM D405-41)	.30
K49.1-1954	Pure Para Red Toner, Light, Specifications for (ASTM D475-49)	.30
K50.1-1949	Zinc Yellow (Zinc Chromate), Specifications for (ASTM D478-49)	.30
K52-1941	Bleeding of Pigments, Methods of Test for (ASTM D279-31)	.30
K53-1941	Hydroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments, Method of Test for (ASTM D280-33)	.30
K54-1941	Oil Absorption of Pigments, Method of Test for (ASTM D281-31)	.30
K55.1-1954	Acetone Extract in Black Pigments, Method of Test for (ASTM D305-51)	.30
K56-1941	△Tinting Strength of White Pigments, Method of Test for (ASTM D332-36)	.30
K57-1953	Mass Color and Tinting Strength of Color Pigments, Method of Test for (ASTM D387-52T)	.30
K58.1-1954	Chemical Analysis of Yellow, Orange, and Green Pigments Containing Lead Chromate, and Chromium Oxide Green, Methods for (ASTM D126-50T)	.30
K59-1941	Chemical Analysis of Dry Mercuric Oxide, Method of (ASTM D284-33)	.30

●K60 — Soaps and Detergents:

K60.1-1952	Chip Soap, Specifications for (ASTM D496-51)	.30
K60.2-1953	Ordinary Laundry Bar Soap, Specifications for (ASTM D497-52)	.30
K60.3-1952	Powdered Soap (Nonalkaline Soap Powder), Specifications for (ASTM D498-51)	.30
K60.4-1949	White Floating Toilet Soap, Specifications for (ASTM D499-48)	.30
K60.5-1949	Alkaline Soap Powder, Specifications for (ASTM D534-42)	.30
K60.6-1954	△Milled Toilet Soap, Specifications for (ASTM D455-53T)	.30
K60.7-1949	Built Soap, Powdered, Specifications for (ASTM D533-44)	.30
K60.8-1949	Compound Chip Soap (with Rosin), Specifications for (ASTM D690-48)	.30
K60.9-1949	Compound Powdered Soap (Granulated, with Rosin), Specifications for (ASTM D691-44)	.30
K60.10-1949	Caustic Soda, Specifications for (ASTM D456-39)	.30
K60.11-1949	△Soda Ash, Specifications for (ASTM D458-39)	.30
K60.12-1949	△Trisodium Phosphate, Specifications for (ASTM D538-44)	.30
K60.13-1949	Salt-Water Soap, Specifications for (ASTM D593-42)	.30
K60.14-1952	Liquid Toilet Soap, Specifications for (ASTM D799-51)	.30
K60.15-1949	Olive Oil Chip Soap (Type A, Straight; Type B, Blended), Specifications for (ASTM D630-42)	.30
K60.16-1953	Palm Oil Chip Soap (Type A, Straight; Type B, Blended), Specifications for (ASTM D536-52)	.30
K60.17-1949	Modified Soda (Sesquicarbonate Type), Specifications for (ASTM D457-39)	.30

		Price
●K60 — Soaps and Detergents *(Continued)*		
K60.18-1949	△Sodium Metasilicate, Specifications for (ASTM D537-41)	.30
K60.19-1949	Sodium Sesquisilicate, Specifications for (ASTM D594-41)	.30
K60.20-1949	Tetrasodium Pyrophosphate (Anhydrous), Specifications for (ASTM D595-45)	.30
K60.21-1955	Sampling and Chemical Analysis of Alkaline Detergents, Methods of (ASTM D501-54)	.30
●		
K62.1-1956	Procedure for the Acceptance of an American Standard Common Name for a Pest Control Chemical	☆

L — Textile Industry

L1.1-1947	†Textile Safety Code	*Out of print*
L3.1-1941	△Cotton Rubber-Lined Fire Hose for Public and Private Fire Department Use, Specifications for (ASTM D296-38)	.30
L4.1-1948	†Bleached Cotton Bed Sheets and Pillowcases, Specifications for	.25
L10-1936 R1945	Shrinkage in Laundering of Woven Cotton Cloth, Method of Test for (AATCC 14-52; ASTM D437-36)	.30
L11.1-1941	†Body Sizes for Boys' Garments	.35
●L12 — Definitions (Including Tolerances) for Filling Materials for Bedding and Upholstery:		
L12.1-1946	†Cotton	.50
L12.2-1946	†Wool	
L12.4-1946	†Miscellaneous	
●		
L13.1-1942	Tubular Sleeving and Braids, Methods of Testing and Tolerances for (ASTM D354-41)	.30
●L14 — Textile Test Methods:		
L14.1-1949	†Accelerated Ageing of Textiles Dyed with Sulfur Colors (AATCC 26-52)	.25
L14.2-1949	†Colorfastness of Textiles to Acids and to Alkalies (AATCC 6-52)	.25
L14.3-1949	†Colorfastness of Wool Textiles to Carbonizing (AATCC 11-52)	.25
L14.4-1949	†Colorfastness of Silk to Degumming (AATCC 7-52)	.25
L14.5-1949	†Colorfastness of Textiles to Fulling (AATCC 2-52)	.25
L14.6-1949	†Colorfastness of Wool Textiles to Mill Washing and Scouring (AATCC 1-52)	.25
L14.7-1949	†Colorfastness of Silk to Peroxide Bleaching (AATCC 15-52)	.25
L14.8-1949	†Colorfastness of Textiles to Sea Water (AATCC 65-52)	.25
L14.9-1949	†Colorfastness of Textiles to Stoving (AATCC 9-52)	.25
L14.10-1949	†Test for Mercerization (AATCC Temporary Test Method 51-52)	.25
L14.11-1949	†Evaluation of Wetting Agents (AATCC 17-52)	.25

		Price
●L14 — Textile Test Methods *(Continued)*		
L14.12-1954	Definition of Terms Relating to Textile Materials (ASTM D123-52)	.60
L14.13-1953	Testing and Tolerances for Cotton Yarns, Methods of (ASTM D180-52T)	.30
L14.14-1949	Testing and Tolerances for Cotton Sewing Threads, Methods of (ASTM D204-42)	.30
L14.16-1949	Testing and Tolerances for Woven Tapes, Methods of (ASTM D259-44)	.30
L14.17-1949	Testing and Tolerances for Certain Light and Medium Weight Cotton Fabrics, Methods of (ASTM D274-36)	.30
L14.18-1953	Asbestos Yarns, Specifications and Methods of Test for (ASTM D299-52T)	.30
L14.19-1949	Determining Relative Humidity, Method of (ASTM D337-34)	.30
L14.20-1949	Holland Cloth, Methods of Test for (ASTM D376-35)	.30
L14.25-1949	Testing Pile Floor Covering, Methods of (ASTM D418-42)	.30
L14.26-1951	Fineness of Wool, Methods of Test for (ASTM D419-50T)	.30
L14.27-1949	Testing and Tolerances for Certain Carded Cotton Gray Goods, Methods of (ASTM D433-39)	.30
L14.28-1954	Testing and Tolerances for Certain Wool and Part Wool Fabrics, Methods for (ASTM D462-53)	.30
L14.29-1954	Fineness of Wool Tops, Specifications and Methods of Test for (ASTM D472-53T)	.30
L14.32-1951	△Fiber Length of Wool, Method of Test for (ASTM D519-49)	.30
L14.33-1949	Testing Rayon and Estron Staple, Methods of (ASTM D540-44)	.30
L14.34-1953	Testing and Tolerances for Single Jute Yarn, Methods of (ASTM D541-52)	.30
L14.35-1953	Testing Woven Asbestos Cloth, Methods of (ASTM D577-52)	.30
L14.36-1951 2nd ed.	△Testing and Tolerances for Glass Yarn, Methods of (ASTM D578-50T)	.30
L14.37-1951	Testing and Tolerances for Woven Glass Fabrics, Methods of (ASTM D579-49)	.30
L14.38-1951	Testing and Tolerances for Woven Glass Tapes, Methods of (ASTM D580-49)	.30
L14.39-1951	Testing and Tolerances for Woven Glass Tubular Sleeving and Braids, Methods of (ASTM D581-49)	.30
L14.40-1954	Clean Wool Content of Wool in the Grease, Tentative Methods of Test for (ASTM D584-53T)	.30
L14.41-1953	Testing Asbestos Tublar Sleeving, Methods of (ASTM D628-52)	.30
L14.42-1949	Testing and Tolerances for Certain Fine Staple Cotton Gray Goods, Methods of (ASTM D679-44)	.30
L14.43-1949	Testing and Tolerances for Certain All-Cotton and Cotton and Rayon Fine Fancy Goods, Methods of (ASTM D680-44)	.30
L14.44-1953	Testing and Tolerances for Jute Rove and Plied Yarn for Electrical and Packing Purposes, Methods of (ASTM D681-52)	.30
L14.45-1953	Testing and Tolerances for Rope made from Bast and Leaf Fibers, Methods of (ASTM D738-52)	.30

●L14 — Textile Test Methods *(Continued)*

		Price
L14.46-1953	Testing and Tolerances for Spun, Twisted, or Braided Products Made from Flax, Hemp, Ramie, or Mixtures Thereof, Methods of (ASTM D759-52)	.30
L14.47-1949	△Compatibility of Glass Yarn with Insulating Varnish, Method of Test for (ASTM D886-46T)	.30
L14.48-1953	Designation of Linear Density of Fibers, Yarns, and Other Textile Materials in Universal Units, Practice for (ASTM D861-52)	.30
L14.49-1949	Test for Small Amounts of Copper and Manganese in Textiles, Method of (ASTM D377-52T)	.30
L14.50-1949	Cotton Goods for Rubber and Pyroxylin Coating, Specifications and Methods of Test for (ASTM D354-40)	.30
L14.51-1949	Air Permeability of Textile Fabrics, Methods of Test for (ASTM D737-46)	.30
L14.52-1955	Testing Felt, Methods of (ASTM D461-53)	.30
L14.53-1951	†Colorfastness to Light (AATCC 16A-54; 16B-52)	Out of print
L14.54-1951	†Colorfastness of Acetate Rayons to Atmospheric Fumes (AATCC 23-52)	
L14.55-1951	†Resistance of Textiles to Mildew and Rot, and Evaluation of Textile Fungicides (AATCC 30-52)	
L14.56-1951	†Colorfastness to Perspiration (AATCC 15-52)	
L14.57-1951	†Colorfastness to Chlorine Bleaching (AATCC 3-52)	
L14.58-1951	†Colorfastness to Peroxide Bleaching (AATCC 29-52)	
L14.59-1951	†Water Resistance of Fabrics — Resistance to Hydrostatic Pressure (AATCC 18-52)	
L14.60-1951	†Resistance to Water Spray (AATCC 22-52)	
L14.61-1951	†Resistance to Absorption of Water During Immersion (AATCC 21-52)	
L14.63-1951	†Colorfastness to Pleating (AATCC 31-52)	
L14.64-1951	†Resistance of Textile Fabrics and Yarns to Insect Pests (AATCC 24-52)	
L14.65-1951	†Evaluation of Insect Pest Deterrents on Textiles (AATCC 28-52)	
L14.66-1954	Textile Testing Machines, Specifications for (ASTM D76-53)	.30
L14.67-1951	Testing and Tolerances for Knit Goods, Methods of (ASTM D231-46)	.30
L14.68-1951	Testing Woven Textile Fabrics, General Methods of (ASTM D39-49)	.30
L14.69-1952	†Flammability of Clothing Textiles, Test Method for (AATCC 33-52; ASTM D1230-52T)	.50

●L17 — Specifications for Women's Industrial Clothing (American War Standards):

		Price
L17.1-1944	†Bungalow, Aprons, and Wrap-around and Coat Style Dresses	.50
L17.2-1944	†Slacks, Dungarees, Overalls, and Coveralls	.50
L17.3-1944	†Jackets, Shirts, and Aprons	.50
L17.4-1944	†Regular and Princess Model Coat Style Dresses	.35

●L18 — Specifications for Protective Occupational (Safety) Clothing (American War Standards):

		Price
L18.1-1944	†Leather Aprons	.50
L18.2-1944	†Cape-Sleeves and Bibs	
L18.3-1944	†Knee-Length Leggings	
L18.4-1944	†Leather Coats	.50
L18.5-1944	†Leather Overalls	
L18.6-1944	†Leather Sleeves	
L18.7-1944	†Welders' Leather Gauntlet Gloves	.50
L18.8-1944	†Protective Leather Gloves, Steel-Stapled	
L18.9-1944	†Asbestos Gloves	
L18.10-1944	†Asbestos Gloves, Leather Reinforced	
L18.11-1944	†Asbestos Mittens	
L18.12-1944	†Asbestos Mittens, Leather Reinforced	
L18.14-1944	†Asbestos Aprons (Bib Type)	.50
L18.15-1944	†Asbestos Cape Sleeves and Bibs	
L18.16-1944	†Asbestos Leggings (Knee and Hip Length)	
L18.17-1944	†Asbestos Coats	
L18.18-1945	†Leather One-Finger Mittens	.50
L18.19-1945	†Leather Mittens	
L18.20-1945	†Asbestos One-Finger Mittens	
L18.21-1945	†Flame-Resistant Fabric Aprons (Bib Type)	.50
L18.22-1945	†Flame-Resistant Fabric Leggings (Knee and Hip Length)	
L18.23-1945	†Flame-Resistant Fabric Coats	
L18.24-1945	†Flame-Resistant Fabric Pants	
L18.25-1945	†Flame-Resistant Fabric Coveralls	
L18.26-1945	†Flame-Resistant Fabric Spats	.50
L18.27-1945	†Leather Spats	
L18.28-1945	†Asbestos Spats	
L18.29-1945	Chemical-Resistant Gloves	.35

●L22 — Rayon and Acetate Fabrics, Minimum Requirements:

(Complete Bound . . . . . $4.25)

		Price
L22.1.1- through L22.1.24-1954	Part I, Women's and Girls' Rayon and Acetate Wearing-Apparel Fabrics (Part I and Test Methods . . . . . $3.00)	1.00
L22.2.1- through L22.2.16-1952	Part II, Men's and Boys' Rayon and Acetate Wearing-Apparel Fabrics (Part II and Test Methods . . . . . $2.80)	.80
L22.3.1- through L22.3.11-1952	Part III, Rayon and Acetate Home-Furnishings Fabrics (Part III and Test Methods . . . . . $2.65)	.65
	Part IV, Test Methods used in conjunction with L22 Standards	2.25

●L24 — Institutional Textiles, Minimum Performance Requirements for:

(Complete Set, Bound . . . . . $6.25)

		Price
L24.1.1- through L24.1.7-1955	Part I, Institutional Furnishings	.65
L24.2.1- thorugh L24.2.11-1955	Part II, Utility Textiles (including L4.1-1948)	.90

		Price
●L24 — Institutional Textiles *(Continued)*		
L24.3.1- through L24.3.7-1955	Part III, Uniforms (including L22.1.4-, L22.1.6-, and L22.2.7-1952)	.90
L24.4.1- through L24.4.11-1955	Part IV, Work Clothes	.90
L24.5.1-1955	Permanent Labels, Detachable Tags and Certification of Fabrics or Products	.25
	Part V, Test Methods	2.75

M — Mining

M2.1-1951	Installing and Using Electrical Equipment in Coal Mines, Safety Rules for (BMTP) 402)	.20
M5-1932	Screen Testing of Ores (Hand Method), Methods for	.25
M6-1931	†Drainage of Coal Mines	.75
M7.1-1933	Frogs, Switches, and Turnouts for Coal Mine Tracks (Drawings for Light Rail Turnouts)	.75
M7.2-1935	Frogs, Switches, and Turnouts for Coal Mine Tracks (Drawings for Heavy Rail Turnouts)	
M11-1927	Wire Rope for Mines	*Under revision—Out of print*
M12.1-1946	†Construction and Maintenance of Ladders and Stairs for Mines	.35
M13-1925 R1942	†Rock-Dusting Coal Mines to Prevent Coal Dust Explosions	.25
M14-1930	†Explosives in Bituminous Coal Mines, Use of	.35
M15-1931	†Coal Mine Transportation, Safety Code for	.35
M17-1930	†Fire Fighting Equipment in Metal Mines	*Gratis*
M18-1928	†Underground Transportation in Metal Mines	*Gratis*
M19-1928	†Mechanical Loading Underground in Metal Mines	*Gratis*
M20.1-1938	Classification of Coals by Rank, Specifications for (ASTM D388-38)	.30
M20.2-1937	Classification of Coals by Grade, Specifications for (ASTM D389-37)	.30
M20.3-1944	Designating the Size of Coal from Its Screen Analysis, Method for (ASTM D431-44)	.30
M20.4-1939	Commercial Varieties of Bituminous and Subbituminous Coals, Definitions for (ASTM D493-39)	.30
M24-1932	†Installing and Using Electrical Equipment in Metal Mines, Safety Rules for	*Gratis*
M28.1-1956	†Safety Procedures for Quarries	1.50

O — Wood Industry

O1.1-1954	†Woodworking Machinery, Safety Code for	1.00
O4a-1927	△Testing Small Clear Specimens of Timber, Methods of (ASTM D143-27)	.30
O4b-1927	Static Tests of Timbers in Structural Sizes, Methods of (ASTM D198-27)	.30
O5.1-1948	†Wood Poles, Specifications and Dimensions for	.75
O6-1939	△Round Timber Piles, Specifications for (ASTM D25-37)	.30

P — Pulp and Paper Industry

P1-1936	†Paper and Pulp Mills, Safety Code for	*Out of print*

PH — Photography and Motion Pictures

●PH1 — Characteristics of Photographic Films, Plates, and Papers:
(Special price of series, $7.50)

PH1.1-1953	†Designation for Thickness of Photographic Paper (Revision of Z38.1.44-1944)	.25
PH1.2-1952	†5¼- x 2¼-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.32-1945)	.25
PH1.3-1952	†5½- x 2⅝-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.33-1945)	.25
PH1.4-1952	†7- x 1⅞-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.34-1945)	.25
PH1.5-1952	†7- x 2⅝-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.36-1945)	.25
PH1.6-1952	†7- x 4⅝-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.37-1945)	.25
PH1.7-1952	†9½- x 4-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.38-1945)	.25
PH1.8-1952	†9½- x 5⅞-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.39-1945)	.25
PH1.9-1952	†9½- x 6⅝-Inch Aerial Film Spools, Dimensions for (Revision of Z38.1.40-1945)	.25
PH1.10-1952	†Roll Film and Unsensitized Leaders and Trailers for Aerial Photography, Dimensions for (Revision of Z38.1.41-1944)	.25
PH1.11-1953	†Photographic Paper Rolls, Dimensions for (Revision of Z38.1.5-1943 and Partial Revision of Z38.1.6-1943)	.25
PH1.12-1953	†Photographic Paper Sheets, Dimensions for (Revision of Z38.1.43-1947 and Partial Revision of Z38.1.6-1943)	.25
PH1.13-1953	†Dimensions for Molded-Type Cores for Photographic Film and Paper Rolls (Revision of Z38.1.48-1947)	.25
PH1.14-1953	†35-Millimeter Film Magazines for Still Picture Cameras, Dimensions for (Revision of Z38.1.47-1946)	.25
PH1.15-1953	†Industrial X-Ray Sheet Film (Inch Sizes), Dimensions for (Revision of Z38.1.25-1947)	.25
PH1.16-1953	†Graphic Arts Sheet Film (Inch Sizes), Dimensions for (Revision of Z38.1.26-1947)	.25
PH1.17-1956	†Medical X-Ray Sheet Film (Inch and Centimeter Sizes), Dimensions for	.25
PH1.18-1956	†Professional Portrait and Commercial Sheet Film (Inch and Centimeter Sizes), Dimensions for (Revision of PH1.18-1953 and Z38.1.29-1949)	.25
PH1.19-1944 R1952	†Emulsion Side of Photographic Sheet Films, Designation of	.25
PH1.20-1956	†70-Millimeter Unperforated and Perforated Film for Cameras other than Motion Picture Cameras (Revision of Z38.1.3-1948)	.25
PH1.21a-1956	†Amateur Roll Film, Spool and Backing Paper No. 828 (Supplement to Z38.1.7-1950)	.25
PH1.24-1955	†35-Millimeter Slide Film Projection Rolls (Revision of Z38.3.3-1946)	.25

Price

● Photographic Films, Plates, and Papers *(Continued)*

PH1.25-1956 †Safety Photographic Film, Specifications for (Revision of Z38.3.1-1943) ..... .50

These Z38 numbers will be changed to PH1 as the standards are revised or reaffirmed.

Z38.1.1-1951 †Film Packs, Dimensions for ..... .25

Z38.1.7-1950 †Amateur Roll Film, Backing Paper, and Film Spools, Dimensions for, with Supplement PH1.21a-1956 ..... 1.00

Z38.1.30-1951 †Photographic Dry Plates (Inch Sizes), Dimensions for ..... .25

Z38.1.31-1944 R1949 †Photographic Dry Plate (Centimeter Sizes), Dimensions for ..... .25

Z38.1.49-1951 †35-Millimeter Magazine Film (for Miniature Cameras), Dimensions for ..... .25

Z38.1.52-1951 †16-Millimeter 100-Foot Film Spool for Recording Instruments and Still Picture Cameras, Dimensions for ..... .25

Z38.1.53-1951 †16-Millimeter 200-Foot Film Spool for Recording Instruments and Still Picture Cameras), Dimensions for ..... .25

Z38.1.54-1951 †35-Millimeter 100-Foot Film Spool for Recording Instruments and Still Picture Cameras, Dimensions for ..... .25

Z38.1.55-1951 †70-Millimeter 100-Foot Film Spool for Recording Instruments and Still Picture Cameras, Dimensions for ..... .25

Z38.3.2-1945 †Films for Permanent Records, Specifications for ..... .50

● PH2 — Photographic Sensitometry

(Special price of series, $4.50)

PH2.1-1952 †Spectral Diffuse Densities of Three-Component Subtractive Color Films ..... .35

PH2.2-1953 †Sensitometry and Grading of Photographic Papers ..... .50

PH2.3-1953 †Relative Photographic Efficiency of Illuminants, Method for Determining the *Out of print*

PH2.4-1953 †Exposure Guide Numbers for Photographic Lamps, Method for Determining .50

PH2.5-1954 †Photographic Speed and Exposure Index, Method for Determining ..... .50

PH2.6-1954 †Spectral-Sensitivity Indexes and Group Numbers for Photographic Emulsions, Methods of Determining ..... .75

PH2.7-1955 †Photographic Exposure Computer (Special quantity discounts apply) 1.50

PH2.8-1956 †Sensitometry of Industrial X-Ray Films for Energies up to 2 Million Electron Volts, Method for ..... ☆

PH2.9-1956 †Sensitometry of Medical X-Ray Films, Method for ..... ☆

● Photographic Sensitometry *(Continued)*

The numbers of the following four standards will be changed to PH2 as the standards are revised or reaffirmed.

Z38.2.5-1946 †Diffuse Transmission Density 1.25

Z38.2.6-1948 †General-Purpose Photographic Exposure Meters (Photoelectric Type) ..... .50

Z38.8.13-1950 †Safety Time of Photographic Dark-room Illumination, Procedure for Determining the ..... .25

Price

● Photographic Sensitometry *(Continued)*

Z52.43-1944 Photographic Flash Lamps, including Supplement Z52.43a (Federal Specification W-L-122 and Supplement) (American War Standard) ..... *Out of print*

● PH3 — Photographic Apparatus:

(Special price of series, $7.50)

PH3.1-1952 †Back Window Location for Roll Film Cameras ..... .25

PH3.2-1952 †Performance Characteristics of Focal-Plane Shutters Used in Still Picture Cameras, Method for Determining ..... .35

PH3.3-1952 †Exposure-Time Markings for Focal-Plane Shutters Used in Still Picture Cameras.. .25

PH3.4-1952 †Performance Characteristics of Between-the-Lens Shutters Used in Still Picture Cameras, Method for Determining .... .35

PH3.5-1952 †Exposure-Time Markings for Between-the-Lens Shutters Used in Still Picture Cameras ..... .25

PH3.6-1952 †Tripod Connections for American Cameras, ¼-Inch-20 Thread (Revision of Z38.4.1-1942) ..... .25

PH3.7-1952 †Tripod Connections for Heavy-Duty or European Cameras, ⅜-Inch-16 Thread with Adapter for ¼-Inch-20 Tripod Screws.. .25

PH3.8-1953 †Contact Printers, Specifications for ..... .25

PH3.9-1953 †Masks (Separate) for Use in Photographic Contact Printing of Roll Film Negatives, Specifications for ..... .25

PH3.10-1954 †Threads for Attaching Mounted Lenses to Photographic Equipment ..... .25

PH3.11-1953 †Stereo Still Pictures on 35-Millimeter Film (5-Perforation Format) Dimensions for ..... .25

PH3.12-1953 †Attachment Threads for Lens Accessories, Specifications for ..... .25

PH3.14-1944 R1952 †Front Lens Mounts for Cameras, Dimensions of ..... .25

PH3.15-1944 R1952 †Printing Frames, Specifications for ..... .25

PH3.16-1947 R1952 †Resolving Power of Lenses for Projectors for 35-mm Slidefilm and 2- x 2-Inch Slides, Method for Determining ..... .25

PH3.19-1948 R1954 †Radiographic Intensifying Screens, Dimensions for ..... .25

PH3.20-1955 †Focusing Camera Lenses, Distance Scales for (Revision of Z38.4.3-1947 and Z38.4.13-1948) ..... .25

PH3.21-1955 †Medical X-Ray Film Cassettes (Inch and Centimeter Sizes) Dimensions for ..... .25

● Photographic Apparatus *(Continued)*

These Z38 numbers will be changed to PH3 as the standards are revised or reaffirmed.

Z38.1.51-1951 †Photographic Double Film Holders of the Lock-Rib Type, Dimensions for ..... .25

Z38.4.4-1942 R1947 †Focal Lengths of Lenses, Marking.. *Out of print*

Z38.4.5-1950 †Shutter Cable Release Tip and Socket with Taper (European) Thread ..... .25

Z38.4.6-1950 †Shutter Cable Release Tip and Socket with Straight (American) Thread ..... .25

● Photographic Apparatus *(Continued)*

		Price
Z38.4.7-1950	†Lens Aperture Markings	.25
Z38.4.8-1950	†Roll Film Cameras, Picture Sizes for	.25
Z38.4.19-1948	†Nomenclature, Parts of a Photographic Objective Lens	.25
Z38.4.20-1948	†Apertures and Related Quantities Pertaining to Photographic Lenses, Methods of Designating and Measuring	.25
Z38.4.21-1948	†Focal Lengths and Focal Distances of Photographic Lenses, Methods of Designating and Measuring	.35
Z38.4.26-1951	†Flash Synchronizing Equipment, Bipost-Type, Connecting Cord Ends and Pins	.25
Z38.4.27-1951	†Flash Synchronizing Equipment, Bayonet-Type, Connecting Cord Ends and Pins	.25
Z38.7.4-1944 R1948	†Projectors for Opaque Materials for Use in Small Auditoriums, Specifications for	.25
Z38.7.5-1948	†Printing and Projection Equipment, Methods of Testing	.25
Z38.7.6-1950	†Photographic Enlargers, Methods for Testing	.35
Z38.7.14-1949	†Lantern Slide Projectors, Specifications for	.25
Z38.7.15-1945	†Slidefilm Projectors, Specifications for	.25
Z38.7.19-1950	†Lantern Slides, Dimensions for	.25

● PH4 — Photographic Processing:

(Special price of series, $18.00)

PH4.2-1952	†Sheet Film Processing Tanks, Specifications for	.25
PH4.3-1952	†Photographic Trays, Specifications for	.25
PH4.4-1952	†Channel-Type Photographic Hangers, Plates and Sheet Film, Specifications for	.25
PH4.5-1953	†Temperature for Photographic Processing Solutions	.25
PH4.6-1953	†Converting Weights and Measures for Photographic Use, Method for	.35
PH4.7-1956	†Photographic Thermometers (Revision of Z38.8.11-1948)	.25
PH4.8-1953	†Thiosulfate Content of Processed Photographic Film, Method of Determining the	.50
PH4.9-1956	†Photographic Graduates (Revision of Z38.8.12-1948)	.25
PH4.10-1953	†Photographic Grade Blotters, Requirements for	.25
PH4.12-1954	†Stability of the Images of Processed Black-and-White Films, Plates, and Papers, Methods for Indicating the	.50
PH4.13-1954	†Chemical Resistivity and Photographic Inertness of Constructional Materials for Processing Equipment, Method and Criteria for Determining the	.50
PH4.15-1945 R1954	†Bite of Film Clip, Dimensions for	.25
PH4.18-1956	†X-Ray Sheet Film Hangers (Clip-Type) (Revision of Z38.8.23-1949)	.25
PH4.19-1956	†Deep Tanks for Manual Processing of Amateur Roll Film, Internal Dimensions for (Revision of Z38.8.8-1946)	.25
PH4.22-1956	†Channel-type Multiple Photographic Hangers (Plates and Sheet Film)	.25

● Photographic Processing *(Continued)*

These Z38 numbers will be changed to PH4 as the standards are revised or reaffirmed.

		Price
Z38.8.3-1947	†Photographic Processing Manipulation of Films and Plates, Practice for	.50
Z38.8.6-1949	†Photographic Processing Manipulation of Paper, Practice for	.50
Z38.8.7-1946	†Radiographic Film Processing Tanks, Internal Dimensions for	.25
Z38.8.9-1946	†Scales, Graduates, and Thermometers for Use in Photography, Accuracy of	.25
Z38.8.12-1948	†Photographic Graduates	.25
Z38.8.14-1950	†Photographic Wetting Agents, Requirements for	.25
Z38.8.18-1948	†Chromium-Plated Surfaces for Ferrotyping	.25
Z38.8.19-1948	†Maximum Safe Temperatures for Photographic Processing Solutions, Method for Determining	.25
Z38.8.20-1948	†Melting Point of the Photographic Layer of Films, Plates, and Papers, Method for Determining the	.25
Z38.8.21-1950	†Photographic Filing Envelopes for Storing Processed Photographic Films, Plates, and Papers, Requirements for	.25
Z38.8.25-1950	†Residual Thiosulfate and Tetrathionate in Processed Photographic Papers, Method for Determining	.35

● Specifications for Photographic Grade Chemicals:

PH4 numbers referring to standards for Photographic Grade Chemicals can be found under Z38.8 below. They are listed numerically according to the number after the second decimal point.

Acids

PH4.105-1952	†Sodium Acid Sulfate, Fused	.25
PH4.107-1954	†Citric Acid, Anhydrous	.25
Z38.8.100-1949	†Acetic Acid, Glacial	.25
Z38.8.101-1949	†Sulfuric Acid	.25
Z38.8.102-1949	†Citric Acid	.25
Z38.8.103-1949	†Boric Acid, Crystalline	.25
Z38.8.104-1949	†Hydrochloric Acid	.25
Z38.8.106-1949	†Acetic Acid, 28 Percent	.25

Developing Agents

PH4.126-1955	†Hydroquinone (Revision of Z38.8.126-1949)	.35
PH4.135-1954	†Mono-Benzyl-Para-Aminophenol Hydrochloride	.25
Z38.8.125-1948	†Mono-Methyl-Para-Aminophenol Sulfate (Armol, Elon, Genol, Graphol, Metol, Photol, Pictol, Rhodol, Veritol)	.25
Z38.8.127-1948	†2, 4-Diaminophenol Hydrochloride (Acrol, Amidol, Dianol, Dolmi)	.25
Z38.8.128-1949	†Para-Hydroxyphenylglycin (Athenon, Glycin, Iconyl, Monazol)	.25
Z38.8.129-1948	†Para-Aminophenol Hydrochloride (Kodelon, P.A.P.)	.25
Z38.8.130-1948	†Pyrogallic Acid (1,2,3-Trihydroxybenzene, Pyro, Pyrogallol)	.25
Z38.8.131-1948	†Catechol (Ortho-Dihydroxybenzene, Pyrocatechin, Pyrocatechol)	.25

● Photographic Grade Chemicals *(Continued)*

Developing Agents *(Continued)*

		Price
Z38.8.132-1948	†Para-Phenylenediamine (1,4-Diaminobenzene)	.25
Z38.8.133-1948	†Para-Phenylenediamine Dihydrochloride (1,4-Diaminobenzene Dihydrochloride)	.25
Z38.8.134-1948	†Chlorhydroquinone (2-Chlor-1,4-Dihydroxybenzene, Adurol, C.H.Q.)	.25

Hardeners

Z38.8.150-1949	†Aluminum Potassium Sulfate, Crystalline	.25
Z38.8.151-1949	†Chromium Potassium Sulfate, Crystalline	.25
Z38.8.152-1949	†Formaldehyde Solution	.25
Z38.8.153-1949	†Paraformaldehyde	.25

Bleaching Agents

Z38.8.177-1949	†Potassium Dichromate	.25
Z38.8.178-1949	†Potassium Permanganate	.25
Z38.8.179-1949	†Potassium Ferricyanide	.25
Z38.8.181-1949	†Potassium Persulfate	.25

Miscellaneous

PH4.178-1954	†Isopropylamine, 50-Percent Aqueous Solution (Monoisopropylamine)	.25
PH4.179-1956	†Sodium Citrate	.25
PH4.181-1954	Benzyl Alcohol	.35
PH4.183-1953	†Ammonium Chloride	.25
PH4.184-1953	†Ammonium Sulfate	.25
Z38.8.175-1949	†Sodium Sulfate, Anhydrous	.25
Z38.8.176-1949	†Sodium Acetate, Anhydrous	.25
Z38.8.180-1949	†Copper Sulfate	.25
Z38.8.182-1949	†Sodium Sulfide, Fused	.25

Restrainers and Antifoggants

PH4.200-1955	†Potassium Bromide (Revision of Z38.8.200-1949)	.25
PH4.204-1955	†Benzotriazole (1,2,3-Benzotriazole) (Revision of Z38.8.204-1948)	.25
PH4.207-1954	†Sodium Bromide	.25
Z38.8.201-1948	†Potassium Iodide	.25
Z38.8.202-1948	†Potassium Chloride	.25
Z38.8.203-1948	†Sodium Chloride	.25
Z38.8.205-1948	†5-Methylbenzotriazole	.25
Z38.8.206-1948	†6-Nitrobenzimidazole Nitrate	.25

Alkalies

PH4.227-1954	†Sodium Carbonate, Monohydrate	.25
PH4.228-1954	†Sodium Carbonate, Anhydrous	.25
PH4.230-1954	†Sodium Tetraborate, Decahydrate (Borax)	.25
PH4.231-1954	†Sodium Metaborate, Octahydrate	.25
PH4.233-1954	†Sodium Tetraborate Pentahydrate (Borax-5 Mole)	.25
Z38.8.225-1948	†Sodium Hydroxide	.25
Z38.8.226-1948	†Potassium Hydroxide	.25
Z38.8.229-1948	†Potassium Carbonate	.25
Z38.8.232-1948	†Ammonium Hydroxide	.25

Fixing Agents

PH4.250-1953	†Sodium Thiosulfate, Anhydrous	.25
PH4.251-1953	†Sodium Thiosulfate, Crystalline	.25

● Photographic Grade Chemicals *(Continued)*

Fixing Agents *(Continued)*

		Price
PH4.252-1953	†Ammonium Thiosulfate, 60 Percent Solution	.25
PH4.253-1953	†Ammonium Thiosulfate	.25

Sulfites

PH4.275-1952	†Sodium Sulfite	.25
Z38.8.276-1949	†Sodium Bisulfite	.25
Z38.8.277-1948	†Potassium Metabisulfite	.25

● PH5 — Photographic Reproduction of Documents:

Z38.7.8-1947	†Microfilms, Practice for	.25
Z38.7.9-1946	†Microfilm Readers, Specifications for	.25
Z38.7.17-1946	†Processed Microfilm, Reels for	.25

● PH22 — Motion Pictures:

(Special price of series, with binder, $23.00; without binder, $18.00)

PH22.1-1953	†35mm Motion-Picture Film, Alternate Standards for Either Positive or Negative Raw Stock, Dimensions for	.25
PH22.2-1954	†35mm Sound Motion-Picture Film Usage in Camera	.25
PH22.3-1954	†35mm Sound Motion-Picture Film Usage in Projector	.25
PH22.5-1953	†16-Millimeter Film, Perforated Two Edges, Dimensions for	.25
PH22.11-1953	†16-Millimeter Motion-Picture Projection Reels	.35
PH22.12-1953	†16-Millimeter Film, Perforated One Edge, Dimensions for	.25
PH22.15-1955	†16mm Film Perforated One Edge, Usage in Camera (Revision of Z22.15-1946)	.25
PH22.16-1955	†16mm Film Perforated One Edge, Usage in Projector (Revision of Z22.16-1947)	.25
PH22.17-1954	†Dimensions for 8mm Motion-Picture Film	.25
PH22.21-1953	†8-Millimeter Motion-Picture Film, Usage in Camera	.25
PH22.22-1953	†8mm Motion-Picture Film, Usage in Projector	.25
PH22.24-1952	†Splices for 16-Millimeter Motion-Picture Films for Projection	.25
PH22.27-1947 R1953	†Transmission Density of Motion-Picture Films, Method of Determining	*Out of print*
PH22.36-1954	†Dimensions for 35mm Motion-Picture Positive Raw Stock	.25
PH22.37-1944 R1953	†Raw Stock Cores for 35-Millimeter Motion-Picture Film	.25
PH22.38-1952	†Raw Stock Cores for 16-Millimeter Motion-Picture Film	.25
PH22.39-1953	†Screen Brightness for 35mm. Motion-Pictures	.25
PH22.42-1955	†16mm Sound-Focusing Test Film (Revision of Z22.42-1946)	.25
PH22.43-1953	†16mm 3000-Cycle Flutter Test Film	.25
PH22.44-1953	†16mm Multifrequency Test Film	.25
PH22.45-1955	†16mm 400-Cycle Signal-Level Test Film (Revision of Z22.45-1946)	.25
PH22.46-1946 R1953	†16-Millimeter Positive Aperture Dimensions and Image Size for Positive Prints Made from 35-Millimeter Negatives	.25

●PH22 — Motion Pictures *(Continued)*

		Price
PH22.47-1946 R1953	†Negative Aperture Dimensions and Image Size for 16-Millimeter Duplicate Negatives Made from 35-Millimeter Positive Prints	.25
PH22.49-1946 R1955	†Printer Aperture Dimensions for Contact Printing 16-Millimeter Reversal and Color Reversal Duplicate Prints	.25
PH22.50-1946 R1952	†Reel Spindles for 16-Millimeter Motion-Picture Projectors	.25
PH22.52-1954	†Cross-Modulation Tests, 16mm Variable-Area Photographic Sound	.25
PH22.53-1953	†Method of Determining Resolving Power of 16mm Motion-Picture Projector Lenses	.25
PH22.57-1955	†16mm Buzz-Track Test Film (Revision of Z22.57-1947)	.25
PH22.58-1954	†Aperture for 35mm Sound Motion-Picture Projectors	.25
PH22.59-1954	†Aperture for 35mm Sound Motion-Picture Cameras	.25
PH22.60-1948 R1953	†Theatre Sound Test Film for 35-Millimeter Motion-Picture Sound Reproducing Systems	.25
PH22.61-1949 R1955	†Sound Focusing Test Film for 35-Millimeter Motion-Picture Sound Reprocers (Reaffirmation of Z22.61-1949)	.25
PH22.62-1948 R1953	†Sound Focusing Test Film for 35-Millimeter Motion-Picture Sound Reproducers (Laboratory Type)	.25
PH22.65-1948 R1953	†Scanning-Beam Uniformity Test Film for 35-Millimeter Motion-Picture Sound Reproducers (Service Type)	.25
PH22.66-1948 R1953	†Scanning-Beam Uniformity Test Film for 35-Millimeter Motion-Picture Sound Reproducers (Laboratory Type)	.25
PH22.67-1948 R1953	†1000-Cycle Balancing Test Film for 35-Millimeter Motion-Picture Sound Reproducers	.25
PH22.68-1949 R1955	†Buzz-Track Test Film for 35-Millimeter Motion-Picture Sound Reproducers (Reaffirmation of Z22.68-1949)	.25
PH22.69-1948 R1953	†Sound Records and Scanning Area of Double Width Push-Pull Sound Prints (Normal Centerline Type)	.25
PH22.70-1948 R1953	†Sound Records and Scanning Area of Double Width Push-Pull Sound Prints (Offset Centerline Type)	.25
PH22.73-1951	†32-Millimeter on 35-Millimeter Motion-Picture Negative Raw Stock, Cutting and Perforating Dimensions for	.25
PH22.74-1951	†Zero Point for Focusing Scales on 16-Millimeter and 8-Millimeter Motion-Picture Cameras	.25
PH22.75-1953	†A and B Windings of 16-Millimeter Film Perforated One Edge	.25
PH22.76-1951	†Mounting Threads and Flange Focal Distances for Lenses on 16-Millimeter and 8-Millimeter Motion-Picture Cameras	.25
PH22.77-1952	†Splices for 8-Millimeter Motion-Picture Films	.25
PH22.82-1951	†Sound Transmission of Perforated Projection Screens	.25
PH22.83-1952	†Edge-Numbering 16-Millimeter Motion-Picture Film	.25

●PH22 — Motion Pictures *(Continued)*

		Price
PH22.84-1953	†Projection Lamps, Medium Prefocus Ring Double-Contact Base-Up Type for 16mm and 8mm Motion-Picture Projectors, Dimensions for	.25
PH22.85-1953	†Projection Lamps, Medium Prefocus Base-Down Type for 16mm and 8mm Motion-Picture Projectors, Dimensions for	.25
PH22.86-1953	†Dimensions for 200-Mil Magnetic Sound Tracks on 35mm and 17½mm Motion-Picture Film	.25
PH22.87-1953	†Dimensions for 100-Mil Magnetic Coating on Single-Perforated 16mm Motion-Picture Film	.25
PH22.90-1953	†Motion Picture Lenses, Aperture Calibration of	.50
PH22.91-1955	†16mm Motion Picture Projector for Use with Monochrome Television Film Chains Operating on Full-Storage Basis	.35
PH22.92-1953	†Enlargement Ratio for 16mm to 35mm Optical Printing	.25
PH22.93-1953	†Dimensions for 35mm Motion-Picture Short-Pitch Negative Film	.25
PH22.94-1954	†Slides and Opaques for Television Film Camera Chains (Supplement to Z38.7.19-1950)	.50
PH22.95-1954	†Television Picture Area—35mm Motion-Picture Film	.25
PH22.96-1954	†Television Picture Area—16mm Motion-Picture Film	.25
PH22.98-1955	†35-Millimeter Magnetic Flutter Test Film, 3 Track	.25
PH22.99-1955	†35-Millimeter Magnetic Azimuth Alignment Test Film	.25
PH22.100-1955	†Screen Brightness of 16-Millimeter Laboratory Review Rooms	.25

●Motion Pictures *(Continued)*

These Z22 numbers will be changed to PH22 as the standards are revised or reaffirmed.

Z22.4-1941	†35mm Film; Projector Reels	.25
Z22.7-1950	†Picture Aperture of 16-Millimeter Motion-Picture Cameras, Location and Size of	.35
Z22.8-1950	†Picture Aperture of 16-Millimeter Motion-Picture Projectors, Location and Size of	.35
Z22.9-1946	†Emulsion Position in Camera for 16-Millimeter Silent Motion-Picture Film	.25
Z22.10-1947	†Emulsion Position in Projector for Direct Front Projection of 16-Millimeter Silent Motion-Picture Film	.25
Z22.19-1950	†Picture Aperture of 8-Millimeter Motion Picture Cameras, Location and Size of	.25
Z22.20-1950	†Picture Aperture of 8-Millimeter Motion Picture Projectors, Location and Size of	.25
Z22.23-1941	†8mm Silent Film; Projection Reels	.25
Z22.28-1946	†Projection Rooms and Lenses for Motion Picture Theatres, Dimensions for	.25
Z22.29-1948	†Theater Projection Screens, Dimensions for	.25
Z22.31-1946	†Motion Picture Safety Film, Definition for	.50
Z22.34-1949	†35-Millimeter Motion Picture Negative Raw Stock, Cutting and Perforating Dimensions for	.25

●PH22 — Motion Pictures *(Continued)*

		Price
Z22.35-1947	†16-Tooth 35-Millimeter Motion Picture Projector Sprockets, Dimensions for	.25
Z22.40-1950	†Sound Records and Scanning Area of 35-Millimeter Sound Motion Picture Prints	.25
Z22.41-1946	†Sound Records and Scanning Area of 16-Millimeter Sound Motion Picture Prints	.25
Z22.48-1946	†Printer Aperture Dimensions for Contact Printing 16-Millimeter Positive Prints from 16-Millimeter Negatives	.25
Z22.51-1946	†Intermodulation Tests on Variable-Density 16-Millimeter Sound Motion Picture Prints, Method of Making	.25
Z22.55-1947	†35-Millimeter Sound Motion Picture Release Prints in Standard 2000-Foot Lengths, Specifications for	.35
Z22.56-1947	†Nomenclature for Motion Picture Film Used in Studios and Processing Laboratories ..... (19½- x 28½-inch reproduction of chart on pages 8 and 9 sold separately....30¢)	.50
Z22.71-1950	†32-Millimeter Sound Motion Picture Negative and Positive Raw Stock, Cutting and Perforating Dimensions for	.25
Z22.72-1950	†32-Millimeter Silent Motion Picture Negative and Positive Raw Stock, Cutting and Perforating Dimensions for	.25
Z22.78-1950	†Mounting Frames for Theater Projection Screens, Dimensions for	.25
Z22.79-1950	†16-Millimeter Sound Projector Test Film..	.25
Z22.80-1950	†Scanning-Beam Uniformity Test Film for 16-Millimeter Motion Picture Sound Reproducers (Laboratory Type)	.25
Z22.81-1950	†Scanning-Beam Uniformity Test Film for 16-Millimeter Motion Picture Sound Reproducers (Service Type)	.25

X — Office Equipment and Supplies

X2.1.1-1951	†Desks and Tables for General Office Use, Dimensions of	.25
X2.1.2-1952	†Installation of Telephone Equipment on Desks, Provisions for	.25
X2.1.3-1954	†Reflectances of Furniture for General Office Use	.25
X2.1.4-1954	†Posture Chair, Definition of	.25
X2.2.1-1955	Basic Sheet Sizes and Standard Stock Sizes for Bond Papers and Index Bristols	.25
X2.4.1-1951	†Index Cards and Record-Keeping Cards, Size Designation for	.25
X2.4.2-1954	†Non-Carbonized, Single-Ply, Adding Machine Paper Rolls, Specifications for....	.25
X2.5.16-1954	†Operating Voltage Range of Office Dictating Machines	.25
X2.5.17-1954	†Maximum Electrical Leakage of Dictating Machines	.25
X2.5.18-1954	†Template and Method of Attaching Dictating Machine Secretarial Hand Controls to Typewriters	.25
X2.5.19-1954	†Cable for Office Dictation Machines, Length of	.25

Y — Drawings, Symbols, and Abbreviations (Formerly Z)

Y is the new letter assigned to standards for abbreviations, charts and graphs, drawings, graphical symbols, and letter symbols. Standards previously approved are lettered "Z".

●Y1 — Abbreviations:

The following standards will be numbered Y1 when they are revised.

		Price
Z10.1-1941	Abbreviations for Scientific and Engineering Terms	.50
Z32.13-1950	†Abbreviations for Use on Drawings	1.25

●Y10 — Letter Symbols: *(see also B6.5 and Z7.1)*

Y10.7-1954	Letter Symbols for Aeronautical Sciences..	1.25
Y10.9-1953	Letter Symbols for Radio	1.00
Y10.10-1953	Meteorology, Letter Symbols for	1.00
Y10.11-1953	Letter Symbols for Acoustics	1.00
Y10.12-1955	Letter Symbols for Chemical Engineering .	1.00

The following numbers will be changed to Y10 as the standards are revised.

Z10f-1928	Mathematical Symbols	.40
Z10.2-1942	Letter Symbols for Hydraulics	.50
Z10.3-1948 R1953	Letter Symbols for Mechanics of Solid Bodies	.50
Z10.4-1943	Letter Symbols for Heat and Thermodynamics, Including Heat Flow	.65
Z10.5-1949	Letter Symbols for Electrical Quantities..	.60
Z10.6-1948	Letter Symbols for Physics	1.00
Z10.8-1949	Letter Symbols for Structural Analysis ...	.50

●Y14 — Drawings and Drafting Room Practice:

The number of this standard will be changed to Y14 when it is revised.

Z14.1-1946	Drawings and Drafting Room Practice....	1.50

●Y15 — Charts and Graphs:

The following numbers will be changed to Y15 when the standards are revised.

Z15.1-1932 R1947	Engineering and Scientific Charts for Lantern Slides	.60
Z15.2-1938 R1947	Time-Series Charts, Manual of Design and Construction	1.50
Z15.3-1943 R1947	Engineering and Scientific Graphs for Publications	.90

Y15 — A Guide for Preparing Technical Illustrations for Publication and Projection $1.25

34-page 8½ x 11 inch, 48 figures, 7 tables. This proposed standard, developed by ASA Sectional Committee Y15, shows how clear, legible, and effective, illustrations can be prepared with minimum effort. Included are: preferred illustration planning and layout practices, factors influencing legibility of reproductions, principles common to both publication and slide copy, preparation of illustrations and copy for either still projections or publications, drafting practices and materials for use in illustration work.

● Y32 — Graphical Symbols:

		Price
Y32.2-1954	†Graphical Symbols for Electrical Diagrams	1.25
Y32.4-1955	Graphical Symbols for Plumbing (Revision of Z32.2.2-1949)	1.00
Y32.9-1943	Architectural Plans, Graphical Electrical Symbols for	.40

As the following standards are revised they will be assigned Y32 numbers.

Z10g5-1933	Graphical Symbols Used for Electric Traction including Railway Signaling (AIEE 17g5-1934)	*Out of print*
Z32.2.1-1949 R1953	Welding, Graphical Symbols for	1.00
Z32.2.3-1949	Pipe Fittings, Valves, and Piping, Graphical Symbols for	.50
Z32.2.4-1949 R1953	Heating, Ventilating, and Air Conditioning, Graphical Symbols for	.50
Z32.2.5-1950	Railroad Use, Graphical Symbols for	.75
Z32.2.6-1950	Heat-Power Apparatus, Graphical Symbols for	.50

Z — Miscellaneous

Z1.1-1941 **Z1.2-1941**	†Guide for Quality Control †Control Chart Method of Analyzing Data (American War Standards)	1.00
Z1.3-1942	†Control Chart Method of Controlling Quality During Production (American War Standard)	1.00
Z2-1938	Protection of Heads, Eyes, and Respiratory Organs, Safety Code for (NBS Handbook H24)	*Out of print*

Z2 Report — The Spectral-Transmissive Properties of Plastics for Use in Eye Protection.. $1.50

48-page 8½ x 11 inch, 106 charts, 4 tables, heavy paper cover. This report was prepared by a subcommittee on Transmissive Properties of Plastics, and contains ultraviolet, luminous and infrared spectral transmissive properties and other characteristic data on many of the presently available types of plastics suitable for use in protecting the eyes in industrial and certain other operations. Much of this spectral transmissive data is new and is being presented in this report for the first time.

Z4.1-1955	†Sanitation in Places of Employment, Minimum Requirements for	.50
Z4.2-1942	†Drinking Fountains, Specifications for	.25
Z4.3-1935	Sanitary Privy (Supplement No. 108 to the Public Health Report)	*Out of print*
Z7.1-1942	Illuminating Engineering Nomenclature and Photometric Standards	.50
Z8-1941	†Laundry Machinery and Operations, Safety Code for	.35
Z9	†Fundamentals Relating to the Design and Operation of Exhaust Systems (Report published for comment)	*Out of print*
Z9.1-1951	†Ventilation and Safe Operation of Open-Surface Tanks	.75

Z10 — See Y1, Y10, and Y32 series in the foregoing and on page 45

● Z11 — Petroleum Products:

(Special price of series, $27.00)

Z11.2-1953	Viscosity by means of Saybolt Viscosimeter, Method of Test for (ASTM D88-53; API 518-53; AASHO T72-53)	.30
Z11.3-1952	Cone Penetration of Lubricating Grease, Test for (ASTM D217-52T)	.30
Z11.4-1942 R1947	Melting Point of Paraffin Wax, Method of Test for (ASTM D87-42; API 513-42)	.30
Z11.5-1948	Cloud and Pour Points, Method of Test for (ASTM D97-47; API 506-47)	.30
Z11.6-1952	Flash and Fire Points by Means of Open Cup, Method of Test for (ASTM D92-52; AASHO T48-52)	.30
Z11.7-1952	Flash Point by Means of the Pensky-Martens Closed Tester, Method of Test for (ASTM D93-52; AASHO T73-52)	.30
Z11.9-1947	Water in Petroleum Products and Other Bituminous Materials, Method of Test for (ASTM D95-46; API 519-46; AASHO T55-46)	.30
Z11.10-1955	Distillation of Gasoline, Naphtha, Kerosine, and Similar Petroleum Products, Method of Test for (ASTM D86-54; AASHO T115-53)	.30
Z11.11-1955	Distillation of Natural Gasoline, Method of Test for (ASTM D216-54)	.30
Z11.13-1952	Sulphur in Petroleum Products by the Bomb Method, Method of Test for (ASTM D129-52)	.30
Z11.14-1950	Thermal Value of Fuel Oil, Method of Test for (ASTM D240-50; API 517-50)	.30
Z11.16-1948	Analysis of Grease, Methods of (ASTM D128-47; API 501-47)	.30
Z11.17-1949	Burning Quality of Kerosine, Method of Test for (ASTM D187-49)	.30
Z11.18-1930 R1947	Burning Quality of Mineral Seal Oil, Method of Test for (ASTM D239-30; API 504-30)	.30
Z11.19-1936 R1947	Burning Quality of Long-Time Burning Oil for Railway Use, Method of Test for (ASTM D219-36; API 503-36)	.30
Z11.20-1955	Saponification Number of Petroleum Products by Color-Indicator Titration, Method of Test for (ASTM D94-55)	.30
Z11.21-1930 R1947	△Detection of Free Sulfur and Corrosive Sulfur Compounds in Gasoline, Method of Test for (ASTM D130-30; API 521-30)	.30
Z11.22-1949	Melting Point of Petrolatum and Microcrystalline Wax, Method of Test for (ASTM D127-49)	.30
Z11.23-1932 R1947	Autogenous Ignition Temperatures of Petroleum Products, Method of Test for (ASTM D286-30; API 522-30)	.30
Z11.24-1952	Flash Point by Means of the Tag Closed Tester, Method of Test for (ASTM D56-52)	.30
Z11.25-1952	Carbon Residue of Petroleum Products (Conradson Carbon Residue), Method of Test for (ASTM D189-52)	.30

●Z11 — Petroleum Products (Continued)

		Price
Z11.26-1955	Distillation of Gas Oil and Similar Distillate Fuel Oils, Method of Test for (ASTM D158-54)	.30
Z11.28-1953	Terms Relating to Petroleum, Definitions of (ASTM D288-53)	.30
Z11.29-1935 R1953	△Dilution of Crankcase Oils, Method of Test for (ASTM D322-35; API 524-35)	.30
Z11.30-1952	Precipitation Number of Lubricating Oils, Method of Test for (ASTM D91-52)	.30
Z11.31-1955 2nd ed.	API Gravity of Petroleum and Its Products (Hydrometer Method), Method of Test for (ASTM D287-55)	.30
Z11.32-1955	Distillation of Crude Petroleum, Method of Test for (ASTM D285-54T)	.30
Z11.33-1935	△Sampling Petroleum and Petroleum Products, Methods of (ASTM D270-33; API 528-33)	.30
Z11.35-1953	Color of Refined Petroleum Oil by Means of Saybolt Chromometer, Method of Test for (ASTM D156-53T)	.30
Z11.36-1953	△Existent Gum in Gasoline (Air-Jet Evaporation), Method of Test for (ASTM D381-52T; API 529-52)	.30
Z11.37-1953	Knock Characteristics of Motor Fuels by the Motor Method, Test for (ASTM D357-53)	.30
Z11.39-1943 R1947	Viscosity-Temperature Charts for Liquid Petroleum Products (ASTM D341-43; API 533-43) (Charts A, B, C, D, and E)	1.25
Z11.41-1952	Unsulfonated Residue of Plant Spray Oils, Method of Test for (ASTM D483-52T)	.30
Z11.42-1952	Stoddard Solvent, Specifications for (ASTM D484-52)	.30
Z11.43-1955	Distillation of Plant Spray Oils, Method of Test for (ASTM D447-55)	.30
Z11.44-1955	Vapor Pressure of Petroleum Products (Reid Method), Method of Test for (ASTM D323-55)	.30
Z11.45-1953	Calculating Viscosity Index, Method for (ASTM D567-53; API 540-53)	.30
Z11.46-1953	Conversion of Kinematic Viscosity to Saybolt Universal Viscosity, Method for (ASTM D446-53; API 534-53)	.30
Z11.47-1952	Carbon Residue of Petroleum Products (Ramsbottom Carbon Residue), Method of Test for (ASTM D524-52T)	.30
Z11.48-1953	Tetraethyl Lead in Gasoline, Method of Test for (ASTM D526-53T)	.30
Z11.49-1945 R1949	Carbonizable Substance in White Mineral Oil (Liquid Petrolatum), Method of Test for (ASTM D565-45; API 545-45)	.30
Z11.50-1945 R1949	Carbonizable Substances in Paraffin Wax, Method of Test for (ASTM D612-45; API 544-45)	.30
Z11.51-1943 R1947	Dropping Point of Lubricating Grease, Method of Test for (ASTM D566-42; API 543-42)	.30
Z11.52-1955	Oil Content of Petroleum Wax, Test for (ASTM D721-55)	.30
Z11.53-1953	Conversion of Kinematic Viscosity to Saybolt Furol Viscosity, Method for (ASTM D666-53; API 548-53)	.30
Z11.54-1947	Ash Content of Petroleum Oils, Method of Test for (ASTM D482-46; API 549-46)	.30
Z11.56-1949	Chemical Analysis for Metals in Lubricating Oils, Methods of (ASTM D811-48)	.30
Z11.57-1949	Sulfated Residue, Lead, Iron, and Copper in New and Used Lubricating Oils, Methods of Test for (ASTM D810-48)	.30
Z11.58-1949	Sediment in Fuel Oil by Extraction, Method of Test for (ASTM D473-48)	.30
Z11.59-1955	Neutralization Value (Acid and Base Numbers) by Potentiometric Titration, Method of Test for (ASTM D664-54)	.30
Z11.60-1949	Oxidation Stability of Aviation Gasoline (Potential Gum Method), Method of Test for (ASTM D873-49)	.30
Z11.61-1949	Congealing Point of Pharmaceutical Petrolatums, Method of Test for (ASTM D938-49)	.30
Z11.62-1955	Density and Specific Gravity of Hydrocarbon Liquids by the Lipkin Bicapillary Pycnometer, Test for (ASTM D941-55)	.30
Z11.63-1955	Oxygen Stability of Gasoline (Induction Period Method), Method of Test for (ASTM D525-55)	.30
Z11.64-1950	Interfacial Tension of Oil Against Water by the Ring Method, Test for (ASTM D971-50)	.30
Z11.65-1950	Oxidation Stability of Lubricating Greases by the Oxygen Bomb Method, Test for (ASTM D942-50)	.30
Z11.66-1950	Determination of Butadiene Content of Polymerization Grade Butadiene (ASTM D973-50)	.30
Z11.67-1955	Saponification Number of Petroleum Products by Potentiometric Titration, Test for (ASTM D939-54)	.30
Z11.68-1955	Sulfated Residue from New Lubricating Oils, Test for (ASTM D874-55)	.30
Z11.69-1955	Knock Characteristics of Motor Fuels by the Research Method, Test for (ASTM D908-55)	.30
Z11.70-1951	Benzene and Toluene by Ultraviolet Spectrophotometry, Test for (ASTM D1017-51)	.30
Z11.71-1955	Olefinic Plus Aromatic Hydrocarbons in Petroleum Distillates, Test for (ASTM D1019-55T)	.30
Z11.72-1955	Apparent Viscosity of Lubricating Greases, Test for (ASTM D1092-55)	.30
Z11.73-1951	Sodium in Lubricating Oils and Lubricating Oil Additives, Test for (ASTM D1026-51)	.30
Z11.74-1952	Acetylene in Polymerization Grade Butadiene by Silver Nitrate Method, Test for (ASTM D1020-52)	.30
Z11.75-1952	Separation of Residue from Butadiene, Test for (ASTM D1023-52)	.30
Z11.76-1952	Nonvolatile Residue of Polymerization Grade Butadiene, Test for (ASTM D1025-52)	.30
Z11.77-1952	Acidity of Residue from Distillation of Gasoline and of Petroleum Solvents, Test for (ASTM D1093-52)	.30
Z11.78-1953	Foaming Characteristics of Crankcase Oils, Test for (ASTM D892-46T)	.30
Z11.79-1953	Butadiene Dimer in Polymerization Grade Butadiene, Method of Test for (ASTM D1024-53)	.30
Z11.80-1953	Boiling Point Range of Polymerization Grade Butadiene, Method of Test for (ASTM D1088-53)	.30

		Price
●Z11 — Petroleum Products (Continued)		
Z11.81-1953	Carbonyl Content of Butadiene, Test for (ASTM D1089-53)	.30
Z11.82-1953	Water Tolerance for Aircraft Fuels, Method of Test for (ASTM D1094-53)	.30
Z11.83-1953	Petroleum Measurement Tables (ASTM D1250-53) (IP 200/52) American Edition *British Edition *Metric Edition Standard (Single sheet listing of Tables contained in the above three editions) *Not included in specially priced series of Petroleum Products Standards or complete set of American Standards.	8.75 7.00 7.70 .30
Z11.84-1955 2nd ed.	Specific Gravity of Petroleum and Its Products (Hydrometer Method), Method of Test for (ASTM D1298-55)	.30
Z11.85-1955	Test for Dust-Preventing Characteristics of Steam-Turbine Oil in the Presence of Water (ASTM D665-54)	.30
Z11.86-1955	Test for Aromatic Hydrocarbons in Olefin-Free Gasolines by Silica Gel Absorption (ASTM D936-55)	.30
Z11.87-1955	Test for Oxidation Characteristics of Inhibited Steam-Turbine Oils (ASTM D943-54)	.30
Z11.88-1955	Test for Measurement of Freezing Points of High-Purity Compounds for Evaluation of Purity (ASTM D1015-55)	.30
Z11.89-1955	Test for Determination of Purity from Freezing Points of High-Purity Compounds (ASTM D1016-55)	.50
Z11.90-1955	Test for Oxygen in Butadiene Vapors (Manganous Hydroxide Method) (ASTM D1021-55)	.30
Z11.91-1955	Test for Sampling Liquefied Petroleum Gases (ASTM D1265-55)	.30
Z11.92-1955	Test for Vapor Pressure of Liquefied Petroleum Gases (ASTM D1267-55)	.30
●Z12 — Dust Explosions:		
Z12.1-1946	Pulverized-Coal Systems, Safety Code for the Installation and Operation of (NFPA 60A)	.35
Z12.2-1944	Starch Factories, Safety Code for the Prevention of Dust Explosions in (NFPA 61A)	.25
Z12.3-1956	Flour and Feed Mills, Safety Code for the Prevention of Dust Explosions in (NFPA 61C)	.35
Z12.4-1956	Terminal Grain Elevators, Safety Code for the Prevention of Dust Explosions in (NFPA 61B)	.35
Z12.5-1953	Woodworking Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 663)	.25
Z12.6-1953	Sugar and Cocoa, Safety Code for Pulverizing Systems for (NFPA 62)	.25
Z12.7-1953	Coal Pneumatic Cleaning Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 653)	.25
Z12.8-1946	Wood Flour Manufacturing Establishments, Safety Code for the Prevention of Dust Explosions in (NFPA 662)	.25
Z12.9-1953	Spice Grinding Plants, Safety Code for the Prevention of Dust Ignitions in (NFPA 656)	.25

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●Z12 — Dust Explosions (Continued)		
Z12.10-1943	Inert Gas for Fire and Explosion Prevention, Safety Code for the Use of (NFPA 12A)	.25
Z12.11-1953	Aluminum Bronze Powder, Safety Code for the Prevention of Dust Explosions in the Manufacture of (NFPA 651)	.25
Z12.12-1950	Sulphur Dust Explosions and Fires, Safety Code for the Prevention of (NFPA 655)	.25
Z12.13-1956	Country Grain Elevators, Code for the Prevention of Dust Ignitions in (NFPA 64)	.25
Z12.14-1943	Grain Elevators and Storage Units, Suggested Good Practices for the Application of Suction and Venting for the Control of Dust in (NFPA 661)	.25
Z12.15-1953	Magnesium Powder or Dust, Code for Explosion and Fire Protection in Plants Producing or Handling (NFPA 652)	.25
Z12.16-1946	Plastics Industry, Safety Code for the Prevention of Dust Explosions in the (NFPA 654)	.35
Z12.17-1946	Pulverized Fuel Systems, Safety Code for the Installation of (NFPA 60)	.50
Z12.18-1953	Confectionery Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 657)	.25
Z14.1-1946	See Y14, page 45.	
Z15 Series	See Y15, page 45	
Z16.1-1954	†Method of Recording and Measuring Work Injury Experience	.50
Z16.2-1941	†Compiling Industrial Accident Causes Part 1—Selection of Accident Factors Part 2—Detailed Classification of Accident Factors	1.25
Z17.1-1936 R1951	†Preferred Numbers	.50
Z20.3-1950	Places of Outdoor Assembly (Grandstands and Tents) (NFPA 102)	.25
●Z21 — Gas-Burning Appliances, Approval and Installation Requirements:		
Z21.1-1955	Domestic Gas Ranges, Approval Requirements for	2.00
Z21.2-1949 R1952	Gas Hose for Portable Gas Appliances, Listing Requirements on	1.00
Z21.3-1940	Hotel and Restaurant Ranges and Unit Broilers, Approval Requirements for, with Addenda Z21.3a-1946 (Z21.3a-1946 sold separately.....40¢)	1.40
Z21.5-1953	Domestic Gas Clothes Dryers, Approval Requirements for, with Addenda Z21.5a-1954 (Z21.5a-1954 sold separately.....25¢)	2.25
Z21.6-1955	Domestic Gas-Fired Incinerators, Approval Requirements for	1.50
Z21.8-1948 R1952	Installation of Domestic Gas Conversion Burners, Requirements for	1.00
Z21.9-1948 R1952	Hot Plates and Laundry Stoves, Approval Requirements for, with Addenda Z21.9a-1949 (Z21.9a-1949 sold separately.....40¢)	1.40

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●Z21 — Gas Burning Appliances *(Continued)*

Z21.10-1953 Gas Water Heaters, Approval Requirements for, with Addenda Z21.10a-1954 and Z21.10b-1955 ..... 2.90
(Z21.10a-1954 sold separately.....50¢)
(Z21.10b-1955 sold separately.....40¢)

Z21.11-1954 Gas-Fired Room Heaters, Approval Requirements for, with Addenda Z21.11a-1955 ..... 2.40
(Z21.11a-1955 sold separately.....40¢)

Z21.12-1937 R1953 Draft Hoods, Listing Requirements for... .50

Approval Requirements for Central Heating Gas Appliances

Z21.13.1-1951 Steam and Hot Water Boilers, Volume 1, with Addenda Z21.13.1a-1954 and Z21.13.1b-1955 ..... 2.50
(Z21.13.1a-1954 sold separately...25¢)
(Z21.13.1b-1955 sold separately...25¢)

Z21.13.2-1955 Gravity and Forced Air Central Furnaces, Volume II 2.00

Z21.13.3-1951 Gravity and Fan Type Floor Furnaces, Volume 3, with Addenda Z21.13.3a-1954 and Z21.13.3b-1955 ..... 2.50
(Z21.13.3a-1954 sold separately...25¢)
(Z21.13.3b-1955 sold separately...25¢)

Z21.13.4-1955 Gravity and Fan Type Vented Recessed Heaters, Volume IV 2.00

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Z21.15-1954 Gas Valves, Listing Requirements for..... 2.00

Z21.16-1951 Gas Unit Heaters, Approval Requirements for, with Addenda Z21.16a-1953 and Z21.16b-1955 ..... 2.15
(Z21.16a-1953 sold separately.....25¢)
(Z21.16b-1955 sold separately.....40¢)

Z21.17-1948 R1952 Domestic Gas Conversion Burners, Listing Requirements for 2.00

Z21.18-1955 Domestic Gas Appliance Pressure Regulators, Listing Requirements for 1.50

Z21.19-1942 R1953 Refrigerators Using Gas Fuel, Approval Requirements for 1.00

Z21.20-1951 Automatic Pilots, Listing Requirements for 1.00

Z21.21-1952 Automatic Valves for Gas Appliances, Listing Requirements for 1.00

Z21.22-1935 R1953 Relief and Automatic Gas Shut-off Valves for Use on Water Heating Systems, Listing Requirements for..... .40

Z21.23-1940 R1953 Gas Appliance Thermostats, Listing Requirements for ..... .50

Z21.24-1955 Metal Connectors for Gas Appliances, Listing Requirements for (Revision of Z21.25-1941 and Z21.32-1940) 1.00

Z21.27-1955 Hotel and Restaurant Deep Fat Fryers, Approval Requirements for 1.50

Z21.28-1948 Portable Gas Baking and Roasting Ovens, Approval Requirements for, with Addenda Z21.28-1954 ..... 2.40
(Z21.28a-1954 sold separately.....40¢)

Z21.29-1941 R1953 Furnace Temperature Limit Controls and Fan Controls, Listing Requirements for.. .50

Z21.30-1954 Installation of Gas Piping and Gas Appliances in Buildings (Not Applicable to Undiluted Liquefied Petroleum Gas) .25

Z21.31-1941 R1947 Gas Counter Appliances, Approval Requirements for, with Addenda Z21.31a-1954 ..... 1.50
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●Z21 — Gas Burning Appliances *(Continued)*

Z21.33-1950 R1953 Installation of Gas-Burning Equipment in Power Boilers, Requirements for 1.00

Z21.34-1955 Gas-Fired Duct Furnaces, Approval Requirements for 1.50

Z21.35-1945 R1953 Gum Protective Devices, Listing Requirements for ..... .50

Z21.37-1948 R1952 Dual Oven Type Combination Gas Ranges, Approval Requirements for 1.00

Z21.38-1953 Installation of Gas Conversion Burners in Domestic Ranges, Requirements for, with Z21.38a-1955 ..... .35
(Z21.38a-1955 sold separately.....10¢)

Z21.39-1953 Gas Conversion Burners for Domestic Ranges, Listing Requirements for, with Z21.39a-1955 ..... 2.50
(Z21.39a-1955 sold separately.....50¢)

●Z22 — Motion Pictures:

This number is being discontinued. Standards assigned Z22 numbers are listed under the new number, PH22.

Z23.1-1939 R1950 Sieves for Testing Purposes, Specifications for (ASTM E11-39; AASHO M92-42).... .30

●Z24 — Acoustics, Vibration, and Mechanical Shock:

(Special price of series, $8.50)

Z24.1-1951 †Acoustical Terminology 1.50

Z24.1a †Shock and Vibration Terminology, Supplement to Z24.1-1951 (Proposed; distributed for trial and criticism) ..... .75

Z24.3-1944 †Sound Level Meters for Measurement of Noise and Other Sounds ..... .50

Z24.4-1949 †Pressure Calibration of Laboratory Standard Pressure Microphones, Method for the ..... .75

Z24.5-1951 †Audiometers for General Diagnostic Purposes ..... .50

Z24.7-1950 †Apparatus Noise Measurement, Test Code for ..... .50

Z24.8-1949 †Laboratory Standard Pressure Microphones, Specification for ..... .50

Z24.9-1949 †Coupler Calibration of Earphones, Method for the ..... .75

Z24.10-1953 †Octave-Band Filter Set for the Analysis of Noise and Other Sounds, Specification for an ..... .50

Z24.11-1954 †Free-Field Secondary Calibration of Microphones, Method for the ..... .50

Z24.12-1952 †Pure-Tone Audiometers for Screening Purposes, Specification for ..... .50

Z24.13-1953 †Speech Audiometers, Specification for .... .50

Z24.14-1953 †Measurement of Characteristics of Hearing Aids, Method for ..... .50

Z24.15-1955 †Specifying the Characteristics of Analyzers Used for the Analysis of Sounds and Vibrations, Method for ..... .50

Z24.17-1955 †Design, Construction, and Operation of Class III (High-Impact) Shock-Testing Machine for Lightweight Equipment, Specification for the 1.00

Z24.18-1956 †Ultrasonic Therapeutic Equipment, Specification for ..... .75

Price

● Z24 — Acoustics, Vibration, and Mechanical Shock *(Continued)*

Z24-X2 The Relations of Hearing Loss to Noise Exposure $1.50

64 pp, 6 x 9 in., 18 figures, 8 tables, heavy paper cover. This report by Exploratory Subcommittee Z24-X-2 of Sectional Committee Z24 on Acoustics, Vibration, and Mechanical Shock analyzes the noise problem. Representing one of the most comprehensive surveys ever made, it tells what factors enter into industrial loss of hearing; how much certain types of noise affect hearing; what allowance to make for recovery of hearing after noise exposure; what loss of hearing to expect of different age groups.

Z25.1-1940 R1947	†Rules for Rounding Off Numerical Values	.35
Z26.1-1950	†Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways, Safety Code for	1.00
Z30.2-1953	Thermal Analysis of Steel (ASTM E14-51T)	.30
Z31-1933	Marking of Gold Filled and Rolled Gold Plate Articles Other Than Watchcases (CS47-34)	*Out of print*
Z32 Series	See Y32 on page 46.	
Z33.1-1950	Regulations for the Installation of Blower and Exhaust Systems for Dust, Stock and Vapor Removal (NFPA 91; NBFU 91)..	.25
Z34.1-1947	†Practice for Certification Procedures	.35
Z35.1-1941 R1945	†Industrial Accident Prevention Signs, Specifications for	.75

● Z37 — Allowable Concentrations of Toxic Dusts and Gases:

Z37.1-1941	†Carbon Monoxide, Allowable Concentration of	.35
Z37.2-1941	†Hydrogen Sulfide, Allowable Concentration of	.35
Z37.3-1941	†Carbon Disulfide, Allowable Concentration of	.35
Z37.4-1941	†Benzene, Allowable Concentration of....	.35
Z37.6-1948	†Manganese, Allowable Concentration of..	.35
Z37.7-1943	†Chromic Acid and Chromates, Allowable Concentration of	.35
Z37.8-1943	†Mercury, Allowable Concentration of	.35
Z37.10-1948	†Xylene, Allowable Concentration of	.35
Z37.11-1943	†Lead and Certain of Its Inorganic Compounds, Allowable Concentration of	.35
Z37.12-1943	†Toluene, Allowable Concentration of	.35
Z37.13-1944	†Oxides of Nitrogen, Allowable Concentration of	.35
Z37.14-1944	†Methanol, Allowable Concentration of ...	.35
Z37.16-1944	†Formaldehyde, Allowable Concentration of	.35
Z37.18-1949	†Methyl Chloride, Allowable Concentration of	.35
Z37.19-1946	†Trichloroethylene, Allowable Concentration of	.35

● Z38 — Photography (other than Cinematography):

This number is being discontinued. Standards assigned Z38 numbers are listed under the appropriate new numbers:— PH1, Films, Plates, and Paper; PH2, Photographic Sensitometry; PH3, Photographic Apparatus; PH4, Photographic Processing; PH5, Reproduction of Documents.

Price

Z39.1-1943	†Reference Data and Arrangement of Periodicals	.25

● Z41 — Specifications for Protective Occupational Footwear (American War Standards):

Z41.1-1944	†Men's Safety-Toe Shoes	.75
Z41.3-1944	†Men's Conductive Shoes	
Z41.4-1944	†Men's Explosives - Operations (Non-sparking) Shoes	
Z41.5-1944	†Men's Electrical-Hazards Shoes	
Z41.6-1944	†Men's Foundry (Molders) Shoes	
Z41.2-1944	†Women's Safety-Toe (Oxford) Shoes	*Out of print*
Z41.7-1944	†Women's Safety-Toe (High) Shoes	
Z41.8-1944	†Women's Explosives - Operations (Non-sparking) Shoes	
Z41.9-1944	†Women's Conductive Shoes	
Z43-1941	†Grinding, Polishing and Buffing Equipment Sanitation	.75
Z48.1-1954	†Marking Portable Compressed Gas Containers to Identify the Material Contained, Method for	.15
Z49.1-1950	Electric and Gas Welding and Cutting Operations, Safety in	.50
Z50.1-1947	†Bakery Equipment, Safety Code for	1.00
Z53.1-1953	†Marking Physical Hazards and the Identification of Certain Equipment, Safety Color Code for	.50
Z54.1-1946	†Industrial Use of X-Rays, Safety Code for the (American War Standard)	1.50
Z55.1-1950	†Gray Finishes for Industrial Apparatus and Equipment	.35
	Color Chips representing Gray Finishes according to Z55.1-1950	
	No. 24—Dark Gray	1.00
	No. 33—Medium Dark Gray	1.00
	No. 49—Medium Light Gray	1.00
	No. 61—Light Gray	1.00

Z56 Nationally Recognized Standards in State Laws and Local Ordinances $1.00

44-page report of ASA Committee Z56 on Model Laws and Ordinances published by ASA to collect ideas and discussion on the question, "How can nationally recognized standards legally be used in state laws and local ordinances?" Points out how lack of uniformity in state and local technical requirements increases costs and reduces public safety; analyzes the need for legal methods to permit widespread use of nationally recognized standards to bring outmoded requirements up to date with new technical developments; summarizes the present status of the "adoption by reference" method; and discusses the method of making compliance with national standards *prima facie* evidence of compliance with the law.

Z57.1-1954	Flutter Content of Sound Recorders and Reproducers, Method for Determining	.75
Z58.1.1-1953	Nomenclature for Radiometry and Photometry	.25
Z58.1.2-1952	†Colorimetry, Nomenclature and Definitions in the Field of	.50

		Price
Z58.7.1-1951	†Spectrophotometric Measurement for Color, Method of	.75
Z58.7.2-1951	†Determination of Color Specifications, Method for	
Z58.7.3-1951	†Expressing Color Specifications, Alternative Methods for	
Z60.1-1952	Nursery Stock — Horticultural Standards with Addendum Z60.1a-1955 (AAN)	.50
Z60.1a-1955	Nursery Stock (Horticultural Stock) Addendum to Z60.1-1952 (AAN)	*Gratis*
Z61.1-1949	†Home Cooking and Baking Utensils, Dimensions, Tolerances, and Terminology for	.35

Z63 A Glossary of Terms in Nuclear Science and Technology (Proposed American Standard; published for trial and criticism) Complete Edition, $5.00

This Glossary consists of the following nine sections. Each lists terms peculiar to its field, those used in the field with a different sense or with different emphasis from that most commonly understood in other connections, and those used elsewhere in the same way but so infrequently as to be unfamiliar. Each section also includes an alphabetical listing of the terms included in all the sections. Sections VIII and IX are published under one cover. All others are available separately.

I	General Terms	$2.50
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V	Chemical Engineering	$ .60
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VII	Instrumentation	$1.00
VIII	Isotopes Separation	$1.20
IX	Metallurgy	

		Price
Z65.1-1956	†Determining Areas in Office Buildings, Method of	.35
Z66.1-1955	†Minimize Hazards to Children from Residual Surface Coating Materials, Specifications to	.35
Z67.1-1953	Gross Calorific Value and Net Calorific Value of Solid and Liquid Fuels, Definitions of the Terms (ASTM D407-44)	.30
Z68.1-1953	△Calorific Value of Gaseous Fuels by Water Flow Calorimeter, Method of Test for (ASTM D900-48)	.60
Z69.1-1953	Specific Gravity of Gaseous Fuels, Methods of Test for (ASTM D1070-52)	.50
Z70.1-1955	†Glass and Metal Luer Tapers for Medical Applications, Dimensions of	.50
Z71.1-1954	Thermometers, Specifications for (ASTM E1-53)	.75
Z75.1-1955	†Scales for Use with Decimal-Inch Dimensioning	.35
Z76.1-1955	Hardness Conversion Table for Cartridge Brass (Relationship between Diamond Pyramid Hardness, Rockwell Hardness, and Brinell Hardness) (ASTM E33-42)	.30
Z76.2-1955	Hardness Conversion Tables for Steel (Relationship between Diamond Pyramid Hardness, Rockwell Hardness, and Brinell Hardness) (ASTM E48-47)	.30
Z76.3-1955	Hardness Conversion Table for Nickel and High-Nickel Alloys (Relationship between Diamond Pyramid Hardness, Brinell Hardness, and Rockwell Hardness) (ASTM E93-52)	.30
Z77.1-1955	Analysis of Natural Gases by the Volumetric-Chemical Method, Method for (ASTM D1136-53)	.30
Z77.2-1955	Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer, Method for (ASTM D1137-53)	.30
Z77.3-1955	Water Vapor Content of Gaseous Fuels by Measurement of Dew-Point Temperature, Method of Test for (ASTM D1142-53)	.30
Z77.4-1955	Sampling Natural Gas, Method of (ASTM D1145-53)	.30

CS — Commercial Standards

The following Commercial Standards, promulgated by the U. S. Dept. of Commerce, have been approved by ASA:

		Price
CS8-41	Gage Blanks (American Standard B47.1-1941)	*Out of print*
CS19-32	Foundry Patterns of Wood (American Standard B45.1-1932)	*Out of print*
CS47-34	Marking of Gold Filled and Rolled Gold Plate Articles Other Than Watchcases (American Standard Z31-1933)	*Out of print*
CS49-34	*Chip Board, Laminated Chip Board, and Miscellaneous Boards for Bookbinding Purposes	*Out of print*
CS50-34	*Binders Board	.05
CS51-35	*Marking Articles Made of Silver in Combination with Gold	.05
CS53-35	*Colors and Finishes for Cast Stone	.05
CS54-35	*Mattresses for Hospitals	*Out of print*
CS55-35	*Mattresses for Institutions	*Out of print*
CS57-40	*Book Cloths, Buckrams, and Impregnated Fabrics for Bookbinding Purposes except Library Bindings	*Out of print*
CS67-38	*Marking Articles Made of Karat Gold	*Out of print*

* For copies, write to: Commercial Standards Division, Department of Commerce, Washington, D. C.

American Safety Standards

(Special Price of Complete Set, $55.00)

(These standards are also included in the preceding general list)

		Price
A2.1-1942	△Fire Tests of Building Construction and Materials, Methods of (ASTM E119-41)	.30
A2.2-1942	△Fire Tests of Door Assemblies, Methods of (ASTM E152-41)	.30
A9.1-1953	Building Exits Code (NFPA 101; AIA 40-B-7)	1.00
A10.1-1951	Manual of Accident Prevention in Construction	3.00
A10.2-1944	†Building Construction, Safety Code for	1.75
A11.1-1952	Industrial Lighting	.50
A12-1932	†Floor and Wall Openings, Railings, and Toe Boards, Safety Code for	.50
A13.1-1956	Identification of Piping Systems, Scheme for the	1.00
A14.1-1952	†Portable Wood Ladders, Safety Code for	.75
A17.1-1955	Elevators, Dumbwaiters, and Escalators, Safety Code for	3.50
A17.1.5-1953	Private Residence Elevators, Safety Code for (Part 5 of A17.1-1955)	1.00
A17.2-1945	Elevators, Inspection of (Inspectors' Manual)	1.50
A23.1-1948	School Lighting (AIA 31-F-28)	.50
A39-1933	†Window Cleaning	.35
A85-1942	†Protective Lighting for Industrial Properties (American War Standard)	*Out of print*
A90.1-1949 R1956	Manlifts, Safety Code for	.55
B7.1-1947	Use, Care, and Protection of Abrasive Wheels, Safety Code for	.75
B8-1932	†Protection of Industrial Workers in Foundries, Safety Code for	.35
B9.1-1953	Mechanical Refrigeration, Safety Code for (ASRE Circular 15-R)	1.00
B11.1-1948	†Power Presses and Foot and Hand Presses, Safety Code for	1.25
B13-1924	Logging and Sawmill Safety Code (NBS Handbook H5)	*Out of print*
B15.1-1953	Mechanical Power-Transmission Apparatus, Safety Code for	1.00
B19-1938	Compressed Air Machinery and Equipment, Safety Code for	*Out of print*
B20.1-1947	Conveyors, Cableways, and Related Equipment, Safety Code for	.90
B24.1-1952	†Forging and Hot Metal Stamping, Safety Code for	1.00
B28.1-1949	†Mills and Calenders in the Rubber Industry, Safety Code for	1.00
B30.1-1943 R1952	Jacks, Safety Code for	.50
B30.2-1943 R1952	Cranes, Derricks, and Hoists, Safety Code for	1.80
B31.1-1955	Code for Pressure Piping (Sections 1 through 7)	3.50
B31.1.8-1955	Gas Transmission and Distribution Piping Systems (Section 8 of Code for Pressure Piping B31.1-1955)	2.50
B56.1-1955	Industrial Power Trucks, Safety Code for	1.00
B65.1-1954	†Controls and Signaling Devices for Graphic Arts Presses, Safety Code for	.50

		Price
C1-1951	National Electrical Code (NBFU 70; Pocket edition) (Paper bound NFPA 70; 4¾ x 7¼ in. ....$1.00)	.10

● C2 — National Electrical Safety Code (NBS Handbook H30):

C2.1-1941 R1947	Installation and Maintenance of Electrical Supply Stations, Safety Rules for the (NBS Handbook H31) (Also sold separately 10¢)	2.25
C2.2-1941 R1947	Installation and Maintenance of Electric Supply and Communication Lines, Safety Rules for the (NBS Handbook H32) (Not sold separately)	
C2.3-1941 R1947	Installation and Maintenance of Electric Utilization Equipment, Safety Rules for the (NBS Handbook H33) (Not sold separately)	
C2.4-1939 R1947	Operation of Electric Equipment and Lines, Safety Rules for the (NBS Handbook H34) (Also sold separately.....20¢)	
C2.5-1940 R1947	Radio Installations, Safety Rules for (NBS Handbook H35) (Also sold separately 15¢)	

● C5 — Protection against Lightning, Code for (NBS Handbook H46; NFPA 78):

C5.1-1953	Part I, Protection of Persons	.40
C5.2-1953	Part II, Protection of Buildings and Miscellaneous Property	
C5.3-1953	Part III, Protection of Structures Containing Flammable Liquids and Gases	

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C33.1-1954	Flexible Cord and Fixture Wire, Safety Standard for	.75
C65.1-1954	Power-Operated Radio Receiving Appliances, Safety Standard for	.25
D6.1-1955	Uniform Traffic Control Devices for Streets and Highways, Manual on	1.00
D7.1-1941	†Inspection Requirements for Motor Vehicles	*Out of print*
D8.1-1956	Railroad Highway Grade Crossing Protection (AAR Bulletin 5)	.50
D10.1-1951	Adjustable Face Traffic Control Signal Head Standards (ITE Technical Report 1)	.50
D11.1-1943	Pre-Timed, Fixed Cycle, Traffic Signal Controllers (ITE Technical Report 2)	.50
D12.1-1953	Street and Highway Lighting	.50
D13.1-1950	Traffic-Actuated, Traffic Signal Controllers and Detectors, Specifications for	.50

		Price
●J6 — Specifications for Rubber Protective Equipment for Electrical Workers:		
J6.1-1950	Rubber Insulating Line Hose (ASTM D1050-49T)	.75
J6.2-1950	Rubber Insulator Hoods (ASTM D1049-49T)	
J6.4-1950	Rubber Insulating Blankets (ASTM D1048-49T)	
J6.5-1950	Rubber Insulating Sleeves (ASTM D1051-49T)	
J6.6-1952	Rubber Insulating Gloves, Specifications for (ASTM D120-52T)	
J6.3-1945	†Leather Protective Gloves (American War Standard)	.25
K13.1-1950	†Identification of Gas-Mask Canisters, Safety Code for	.35
L1.1-1947	†Textile Safety Code	*Out of print*
●L18 — Specifications for Protective Occupational (Safety) Clothing (American War Standards):		
L18.1-1944	†Leather Aprons	.50
L18.2-1944	†Cape Sleeves and Bibs	
L18.3-1944	†Knee-Length Leggings	
L18.4-1944	†Leather Coats	.50
L18.5-1944	†Leather Overalls	
L18.6-1944	†Leather Sleeves	
L18.7-1944	†Welders' Leather Gauntlet Gloves	.50
L18.8-1944	†Protective Leather Gloves, Steel-Stapled	
L18.9-1944	†Asbestos Gloves	
L18.10-1944	†Asbestos Gloves, Leather Reinforced	
L18.11-1944	†Asbestos Mittens	
L18.12-1944	†Asbestos Mittens, Leather Reinforced	
L18.14-1944	†Asbestos Aprons (Bib Type)	.50
L18.15-1944	†Asbestos Cape Sleeves and Bibs	
L18.16-1944	†Asbestos Leggings (Knee and Hip Length)	
L18.17-1944	†Asbestos Coats	
L18.18-1945	†Leather One-Finger Mittens	.50
L18.19-1945	†Leather Mittens	
L18.20-1945	†Asbestos One-Finger Mittens	
L18.21-1945	†Flame-Resistant Fabric Aprons (Bib Type)	.50
L18.22-1945	†Flame-Resistant Fabric Leggings (Knee and Hip Length)	
L18.23-1945	†Flame-Resistant Fabric Coats	
L18.24-1945	†Flame-Resistant Fabric Pants	
L18.25-1945	†Flame-Resistant Fabric Coveralls	
L18.26-1945	†Flame-Resistant Fabric Spats	.50
L18.27-1945	†Leather Spats	
L18.28-1945	†Asbestos Spats	
L18.29-1945	†Chemical-Resistant Gloves	.35
M2.1-1951	Installing and Using Electrical Equipment in Coal Mines, Safety Rules for (BMTP 402)	.20
M11-1927	Wire Rope for Mines	*Out of print*
M12.1-1946	†Construction and Maintenance of Ladders and Stairs for Mines	.35
M13-1925 R1942	†Rock-Dusting Coal Mines to Prevent Coal Dust Explosions	.25
M14-1930	†Explosives in Bituminous Coal Mines, Use of	.35
M15-1931	†Coal Mine Transportation, Safety Code for	.35
M17-1930	†Fire Fighting Equipment in Metal Mine	*Gratis*
M24-1932	†Installing and Using Electrical Equipment in Metal Mines, Safety Rules for	*Gratis*
M28.1-1955	†Safety Procedures for Quarries	1.50
O1.1-1954	†Woodworking Machinery, Safety Code for	1.00
P1-1936	†Paper and Pulp Mills, Safety Code for	*Out of print*
Z2-1938	Protection of Heads, Eyes, and Respiratory Organs, Safety Code for (NBS Handbook H24)	*Out of print*

Z2 Report — The Spectral-Transmissive Properties of Plastics for Use in Eye Protection $1.50

48-page 8½ x 11 inch, 106 charts, 4 tables, heavy paper cover. This report was prepared by a subcommittee on Transmissive Properties of Plastics, and contains ultraviolet, luminous and infrared spectral transmissive properties and other characteristic data on many of the presently available types of plastics suitable for use in protecting the eyes in industrial and certain other operations. Much of this spectral transmissive data is new and is being presented in this report for the first time.

Z4.1-1955	†Sanitation in Places of Employment, Minimum Requirements for	.50
Z4.2-1942	†Drinking Fountains, Specifications for	.25
Z4.3-1935	Sanitary Privy (Supplement 108 to the Public Health Reports)	*Out of print*
Z8-1941	†Laundry Machinery and Operations, Safety Code for	.35
Z9	†Fundamentals Relating to the Design and Operation of Exhaust Systems (Report published for comment)	*Out of print*
Z9.1-1951	†Ventilation and Safe Operation of Open-Surface Tanks	.75
●Z12 — Dust Explosions:		
Z12.1-1946	Pulverized-Coal Systems, Safety Code for the Installation and Operation of (NFPA 60A)	.35
Z12.2-1944	Starch Factories, Safety Code for the Prevention of Dust Explosions in (NFPA 61A)	.25
Z12.3-1956	Flour and Feed Mills, Safety Code for the Prevention of Dust Explosions in (NFPA 61C)	.35
Z12.4-1956	Terminal Grain Elevators, Safety Code for the Prevention of Dust Explosions in (NFPA 61B)	.35
Z12.5-1953	Woodworking Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 663)	.25
Z12.6-1953	Sugar and Cocoa, Safety Code for Pulverizing Systems for (NFPA 62)	.25
Z12.7-1953	Coal Pneumatic Cleaning Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 653)	.25

● Z12 — Dust Explosions *(Continued)*

		Price
Z12.8-1946	Wood Flour Manufacturing Establishments, Safety Code for the Prevention of Dust Explosions in (NFPA 662)	.25
Z12.9-1953	Spice Grinding Plants, Safety Code for the Prevention of Dust Ignitions in (NFPA 656)	.25
Z12.10-1943	Inert Gas for Fire and Explosion Prevention, Safety Code for the Use of (NFPA 12A)	.25
Z12.11-1953	Aluminum Bronze Powder, Safety Code for the Prevention of Dust Explosions in the Manufacture of (NFPA 651)	.25
Z12.12-1950	Sulphur Dust Explosions and Fires, Safety Code for the Prevention of (NFPA 655)	.25
Z12.13-1956	Country Grain Elevators, Code for the Prevention of Dust Ignitions in (NFPA 64)	.25
Z12.14-1943	Grain Elevators and Storage Units, Suggested Good Practices for the Application of Suction and Venting for the Control of Dust in (NFPA 661)	.25
Z12.15-1953	Magnesium Powder or Dust, Code for Explosion and Fire Protection in Plants Producing or Handling (NFPA 652)	.25
Z12.16-1946	Plastics Industry, Safety Code for the Prevention of Dust Explosions in the (NFPA 654)	.35
Z12.17-1946	Pulverized Fuel Systems, Safety Code for the Installation of (NFPA 60)	.50
Z12.18-1953	Confectionery Plants, Safety Code for the Prevention of Dust Explosions in (NFPA 657)	.25

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Z16.1-1954	†Recording and Measuring Work Injury Experience, Method of	.50
Z16.2-1941	†Compiling Industrial Accident Causes Part 1—Selection of Accident Factors .. Part 2—Detailed Classification of Accident Factors	1.25
Z20.3-1950	Places of Outdoor Assembly, Grandstands and Tents (NFPA 102)	.25
Z21.30-1954	Installation of Gas Piping and Gas Appliances in Buildings (Not Applicable to Undiluted Liquefied Petroleum Gas)	.25
Z26.1-1950	†Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways, Safety Code for	1.00
Z33.1-1950	Regulations for the Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal (NFPA 91; NBFU 91)	.25
Z35.1-1941 R1945	†Industrial Accident Prevention Signs, Specifications for	.75

● Z37 — Allowable Concentration of Toxic Dusts and Gases:

Z37.1-1941	†Carbon Monoxide, Allowable Concentration of	.35
Z37.2-1941	†Hydrogen Sulfide, Allowable Concentration of	.35
Z37.3-1941	†Carbon Disulfide, Allowable Concentration of	.35
Z37.4-1941	†Benzene, Allowable Concentration of	.35
Z37.6-1948	†Manganese, Allowable Concentration of	.35

● Z37 — Toxic Dusts and Gases *(Continued)*

		Price
Z37.7-1943	†Chromic Acid and Chromates, Allowable Concentration of	.35
Z37.8-1943	†Mercury, Allowable Concentration of	.35
Z37.10-1948	†Xylene, Allowable Concentration of	.35
Z37.11-1943	†Lead and Certain of Its Inorganic Compounds, Allowable Concentration of	.35
Z37.12-1943	†Toluene, Allowable Concentration of	.35
Z37.13-1944	†Oxides of Nitrogen, Allowable Concentration of	.35
Z37.14-1944	†Methanol, Allowable Concentration of	.35
Z37.16-1944	†Formaldehyde, Allowable Concentration of	.35
Z37.18-1949	†Methyl Chloride, Allowable Concentration of	.35
Z37.19-1946	†Trichloroethylene, Allowable Concentration of	.35

● Z41 — Specifications for Protective Occupational Footwear (American War Standards):

Z41.1-1944	†Men's Safety-Toe Shoes	.75
Z41.3-1944	†Men's Conductive Shoes	
Z41.4-1944	†Men's Explosives-Operations (Non-sparking) Shoes	
Z41.5-1944	†Men's Electrical-Hazards Shoes	
Z41.6-1944	†Men's Foundry (Molders) Shoes	
Z41.2-1944	†Women's Safety-Toe (Oxford) Shoes	*Out of print*
Z41.7-1944	†Women's Safety-Toe (High) Shoes	
Z41.8-1944	†Women's Explosives-Operations (Non-sparking) Shoes	
Z41.9-1944	†Women's Conductive Shoes	

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Z43-1941	†Grinding, Polishing, and Buffing Equipment Sanitation	.75
Z48.1-1954	Portable Compressed Gas Containers to Identify the Material Contained, Method for Marking	.15
Z49.1-1950	Electric and Gas Welding and Cutting Operations, Safety in	.50
Z50.1-1947	†Bakery Equipment, Safety Code for	1.00
Z53.1-1953	†Marking Physical Hazards and the Identification of Certain Equipment, Safety Color Code for	.50
Z54.1-1946	†Industrial Use of X-Rays, Safety Code for the (American War Standard)	1.50
Z66.1-1955	†Minimize Hazards to Children from Residual Surface Coating Materials, Specifications to	.35

PM87.1 American Safety Standards ..... Free

More than 160 American Safety Standards, many widely used in industry and some incorporated in government regulations, are listed and described in this booklet. A brief commentary on each standard tells what the standard covers and outlines its requirements or recommendations. A comprehensive subject index makes it possible to locate any subject covered in any of the standards quickly and easily. In addition to approved American Safety Standards, the booklet also includes a list of safety standards under development.

American Standards on Consumer Goods

(Special Price of Complete Set, $50.00)

(These standards are also included in the preceding general list)

		Price
A14.1-1952	†Portable Wood Ladders, Safety Code for	.75
A17.1.5-1953	Private Residence Elevators, Safety Code for	1.00
B38.1-1955	†Food-Storage Volume and Shelf Area of Automatic Household Refrigerators, Method of Computing	☆
B38.2-1944	†Household Electric Refrigerators (Mechanically Operated), Test Procedures for	.50
B38.3-1955	Methods of Rating and Testing Home Freezers	.50
C1-1953	National Electrical Code (NBFU 70; Pocket edition) (Paper-bound NFPA 70; 4¾ x 7¼ in., 576 pages .....$1.00) (Cloth-bound NFPA 70; 6 x 9 in., 576 pages .....$2.00)	.10

●C5 — Protection Against Lightning, Code for (NBS Handbook H46; NFPA 78):

C5.1-1953	Part I, Protection of Persons	.40
C5.2-1953	Part II, Protection of Buildings and Miscellaneous Property	
C5.3-1953	Part III, Protection of Structures Containing Flammable Liquids and Gases	

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C18.1-1954	Dry Cells and Batteries, Specifications for (NBS Circular C599)	.25
C65.1-1952	Power-Operated Radio Receiving Appliances	.25
C70.1-1953	Household Automatic Electric Flatirons (NEMA DAI-1954)	1.00
C71.1-1950	Household Electric Ranges (NEMA ERI-1950)	.90
C72.1-1949	Household Automatic Electric Storage-Type Water Heaters (NEMA WHI-1949)	.90
L4.1-1948	†Bleached Cotton Bed Sheets and Pillowcases, Specifications for	.25
L11.1-1941	†Body Sizes for Boys' Garments	.35

●L12 — Definitions (Including Tolerances) for Filling Materials for Bedding and Upholstery:

L12.1-1946	†Cotton	.50
L12.2-1946	†Wool	
L12.4-1946	†Miscellaneous	

		Price
●L22—Rayon and Acetate Fabrics, Minimum Requirements: *(Complete, Bound $4.25)*		
L22.1.1- through L22.1.24-1952	Part I, Women's and Girls' Rayon and Acetate Wearing-Apparel Fabrics (Part I and Test Methods.....$3.00)	1.00
L22.2.1- through L22.2.16-1952	Part II, Men's and Boys' Rayon and Acetate Wearing-Apparel Fabrics (Part II and Test Methods.....$2.80)	.80
L22.3.1- through L22.3.11-1952	Part III, Rayon and Acetate Home-Furnishings Fabrics (Part III and Test Methods.....$2.65)	.65
	Part IV, Test Methods used in conjunction with L22 Standards	2.25
●L24 — Institutional Textiles, Minimum Performance Requirements for: *(Complete Set, Bound.....$6.25)*		
L24.1.1- through L24.1.7-1955	Part I, Institutional Furnishings	.65
L24.2.1- through L24.2.11-1955	Part II, Utility Textiles (including L4.1-1948)	.90
L24.3.1- through L24.3.7-1955	Part III, Uniforms (including L22.1.4-, L22.1.6-, and L22.2.7-1952)	.90
L24.4.1- through L24.4.11-1955	Part IV, Work Clothes	.90
L24.5.1-1955	Permanent Labels, Detachable Tags and Certification of Fabrics or Products	.25
	Part V Test Methods	2.75

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PH2.7-1955	†Photographic Exposure Computer (Special quantity discounts apply)	1.50
Z38.7.4-1944 R1948	†Projectors for Opaque Materials for Use in Small Auditoriums, Specifications for	.25
Z38.7.5-1948	†Printing and Projection Equipment, Methods of Testing	.25
Z38.7.6-1950	†Photographic Enlargers, Methods for Testing	.35
Z38.7.9-1946	†Microfilm Readers, Specifications for	.25
Z38.7.14-1949	†Lantern Slide Projectors, Specifications for	.25
Z38.7.15-1945	†Slidefilm Projectors, Specifications for	.25
PH4.6-1953	†Converting Weights and Measures for Photographic Use, Method for	.35

		Price
Z38.8.3-1947	†Photographic Processing Manipulation of Films and Plates, Practice for	.50
Z38.8.6-1949	†Photographic Processing Manipulation of Paper, Practice for	.50
Z38.8.13-1950	†Safety-Time of Photographic Dark-Room Illumination, Procedure for Determining the	.25
Z38.8.23-1950	†Residual Thiosulfate and Tetrathionate in Processed Photographic Papers, Method for Determining	.35
Z21.1-1955	Domestic Gas Ranges, Approval Requirements for	2.00
Z21.2-1949 R1952	Gas Hose for Portable Gas Appliances, Listing Requirements on	1.00
Z21.5-1953	Domestic Gas Clothes Dryers, Approval Requirements for, with Addenda Z21.5a-1954 (Z21.5a-1954 sold separately.....25¢)	2.25
Z21.6-1955	Domestic Gas-Fired Incinerators, Approval Requirements for	1.50
Z21.8-1948 R1952	Installation of Domestic Gas Conversion Burners, Requirements for	1.00
Z21.9-1948 R1952	Hot Plates and Laundry Stoves, Approval Requirements for, with Addenda Z21.9a-1949 (Z21.9a-1949 sold separately.....40¢)	1.40
Z21.10-1953	Gas Water Heaters, Approval Requirements for, with Addenda Z21.10a-1954 and Z21.10b-1955 (Z21.10a-1954 sold separately.....50¢) (Z21.10b-1955 sold separately.....40¢)	2.90
Z21.11-1954	Gas-Fired Room Heaters, Approval Requirements for, with Addenda Z21.11a-1955 (Z21.11a-1955 sold separately.....40¢)	2.40
Z21.12-1937 R1953	Draft Hoods, Listing Requirements for	.50

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Approval Requirements for Central Heating Gas Appliances

Z21.13.1-1951	Steam and Hot Water Boilers, Volume I, with Addenda Z21.13.1a-1954 and Z21.13.1b-1955 (Z21.13.1a-1954 sold separately.....25¢) (Z21.13.1b-1955 sold separately.....25¢)	2.50

Gas Heating Appliances (*Continued*)

Z21.13.2-1955	Gravity and Forced Air Central Furnaces, Approval Requirements for, Volume II	2.00
Z21.13.3-1951	Gravity and Fan Type Floor Furnaces, Volume 3, with Addenda Z21.13.3a-1954 and Z21.13.3b-1955 (Z21.13.3a-1954 sold separately.....25¢) (Z21.13.3b-1955 sold separately.....25¢)	2.50
Z21.13.4-1955	Gravity and Fan Type Vented Recessed Heaters, Approval Requirements for, Volume IV	2.00
Z21.16-1951	Gas Unit Heaters, Approval Requirements for, with Addenda Z21.16a-1953 and Z21.16b-1955 (Z21.16a-1953 sold separately.....25¢) (Z21.16b-1955 sold separately.....40¢)	2.15

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Z21.17-1948 R1952	Domestic Gas Conversion Burners, Listing Requirements for	2.00
Z21.19-1942 R1953	Refrigerators Using Gas Fuel, Approval Requirements for	1.00
Z21.24-1955	Metal Connectors for Gas Appliances, Listing Requirements for (Revision of Z21.25-1941 and Z21.32-1940)	1.00
Z21.28-1948	Portable Gas Baking and Roasting Ovens, Approval Requirements for, with Addenda Z21.28a-1954 (Z21.28a-1954 sold separately.....40¢)	2.40
Z21.37-1948 R1952	Dual Oven Type Combination Gas Ranges, Approval Requirements for	1.00
Z21.38-1953	Installation of Gas Conversion Burners in Domestic Ranges, Requirements for, with Addenda Z21.38a-1955 (Z21.38a-1955 sold separately.....10¢)	.35
Z21.39-1953	Gas Conversion Burners for Domestic Ranges, Listing Requirements for, with Addenda Z21.39a-1955 (Z21.39a-1955 sold separately.....50¢)	2.50
Z60.1-1952	Nursery Stock — Horticultural Standards with Addendum Z60.1a-1955 (AAN)	.50
Z60.1a-1955	Nursery Stock (Horticultural Stock) Addendum to Z60.1-1952 (AAN)	*Gratis*
Z61.1-1949	†Home Cooking and Baking Utensils, Dimensions, Tolerances, and Terminology for	.35